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The President's Column

Rensis Likert

It is a truism that one of the most, if not the most, important activities of a professional society is its publication program. In ASA the goal of providing periodicals of highest caliber with maximum value to members and other readers has consistently occupied the attention and efforts of the Association. Most recently a major study was undertaken to determine the opinion of the members concerning the publication policies in general, and the JOURNAL and THE AMERICAN STATISTICIAN in particular.

The study, undertaken initially under the leadership of former Presidents William R. Leonard and Walter E. Hoadley, Jr., is being conducted by the Committee on Publications Policy. It began with a five-page letter outlining some of the problems and current policies and was sent to the members of the Board, Council and Section officers asking for their thoughts on the matter. Following the receipt of replies to this letter, it was decided to carry out a sample survey of the membership. In September 1958, after considerable planning of the questionnaire, a mailing was made to 1,736 members (worldwide). After one follow-up mailing, a total of 1,274 completed questionnaires were returned, a response rate of about 73 percent.

Almarin Phillips, Chairman of the Committee on Publications Policy has presented a progress report to the Board of Directors, based upon the tabulations completed to date. The final report of the Committee, with its recommendations, has not yet been submitted. However, some of the findings from the questionnaires received are of great interest and presentation here of some of these results will not interfere with the final report to come.

It is interesting to note that independent tabulations have been taken from the 1958 Membership Directory listing forms during approximately the same period as the tabulating of the questionnaires on publication policy and, while the two studies were completely separate, it appears that the figures from the Directory forms are consistent with the findings from the questionnaire (where the questions covered the same type of informa-

(Continued on back cover)

NEWS

1960 SLATE NOMINATED — FURTHER PLANS FOR 1959 ANNUAL MEETING — WALLIS RESIGNS AS *JOURNAL* EDITOR — STATISTICAL JOURNALS AT NBS LIBRARY — MEETINGS — NEW PUBLICATIONS — JOB OPENINGS

ASA Officers Nominated

The Committee on Nominations, composed of Morris H. Hansen, Chairman, Boyd Harshbarger and Ralph J. Watkins, has nominated officers to be voted on by ASA members in the fall. In making its selections, the Committee endeavored to get as much balance among various fields of interest as possible, taking into consideration those who are now serving and whose terms continue next year as well as those to be nominated. The nominees are:

President-Elect

Martin R. Gainsbrugh, National Industrial Conference Board

Vice-President (1960-62)
(one to be elected)

W. J. Youden, National Bureau of Standards
G. E. P. Box, Princeton University

Directors (1960-62)
(two to be elected)

S. M. Free, Smith, Kline and French Laboratories, Philadelphia
Harold F. Dorn, National Institutes of Health
Frederick Mosteller, Harvard University
Raymond J. Jessen, General Analysis Corporation, Los Angeles

Representative-at-Large (1960-61)
(one to be elected)

Robert E. Johnson, Western Electric Corporation, New York
Forrest E. Linder, Public Health Service, Department of Health, Education and Welfare

Nominations for District Representatives, which are made by the Chapter or on petition of ASA members, are not yet complete, but will be reported in the October issue of THE AMERICAN STATISTICIAN.

Plans for ASA Annual Meeting

Conventions may or may not be America's "third best sport," as one Broadway play this season claimed. The statistical basis for this conclusion was not spelled out. But it is true people come to conventions for many different reasons.

The Local Arrangements Committee has plans well under way to make certain that everyone attending the annual meetings in Washington this year-end will find good accommodations at reasonable prices, and that everything will run smoothly.

Some people come to conventions for the papers and for intellectual stimulation. Some people stay away unless there is assurance that the meetings will provide something more than a chance to see old friends. That's the task of the Program Committee.

The 1959 Program Committee, through its five Section Representatives is determined to present 50 sessions from Sunday morning through Wednesday noon, December 27-30, that will make it worthwhile for members of the Association to leave their homes over the holidays and entice them into the meeting rooms.

There will be a diversity of programs to satisfy the specialized interests of the membership of a very heterogeneous association. But the main effort of the Program Committee is to offer a program of sessions that will do something much more than this. Each Section so far as possible, is striving to arrange a number of sessions that will deal with new developments in statistical methodology, sometimes growing out of work in their specialized fields, that have relevance and importance to members of the association whatever their own field of specialization may be. Joint sessions between Sections will be arranged wherever possible.

Much is said these days about the need for refresher training. This was one of the major needs of the Association stressed in last year's Presidential Address. The Program Committee does not pretend this can be done in a four-day convention; but it does believe that professional statisticians will find intellectual stimulation in a series of meetings designed to bring them abreast of current developments of professional interest in the whole range of statistics. If your job has confined you to a relatively narrow specialized field, here is your chance for a quick survey, for statisticians, of important methodological developments cutting across subject-matter specialties.

The program, now being worked out in detail, will be published in the October issue of THE AMERICAN STATISTICIAN. Meeting rooms will be large enough to avoid the crowding that occurred at some popular sessions last year. Sessions will generally be limited to 2 speakers, so they can say what they have to say with time left for the discussants and for you.

The Presidential Address by Rensis Likert, dealing with statistics and public policy questions, is scheduled for Tuesday evening, December 29. There will be the traditional Economic Outlook Luncheon the preceding Monday noon.

A special event, now being arranged by President-Elect Morris Hansen, is planned to bring to the attention of a broader public the role of statistics in the modern science that it reads about in the daily papers but perhaps never connects with statistics.

If you have new results you want to report, Contributed Papers are now being solicited. (see the announcement on page 29 of THE AMERICAN STATISTICIAN of April).

Resignation of Wallis as JASA Editor

W. Allen Wallis, the Editor of the JOURNAL OF THE AMERICAN STATISTICAL ASSOCIATION, has resigned because of the demands of his new position in Washington as Executive Director of the Cabinet Committee on Price Stability and Economic Growth. Mr. Wallis, who has edited the JOURNAL since 1950, has developed the system of editorial associates and advisers and has collaborated with the recently established liaison editors from the Association's five sections. He has served with distinction as editor of the central publication in a subject that has growing diversities of interest and specialization.

Professor David L. Wallace of the Department of Statistics of the University of Chicago has agreed to serve as Acting Editor. At its April 29th meeting the ASA Board of Directors requested the President of the Association to appoint a committee whose task it would be to recommend a successor to Mr. Wallis.

Interim Arrangement for Editorship of The American Statistician

During the 1959-60 year, Almarin Phillips, Graduate School of Business Administration, University of Virginia, will replace Morris Hamburg as Editor of THE AMERICAN STATISTICIAN. Professor Hamburg has been given a one-year leave of absence from the University of Pennsylvania to attend the Institute of Basic Mathematics at Harvard.

Profesor Phillips was Editor of THE AMERICAN STATISTICIAN from 1953 to 1956. He is also Chairman of the ASA Committee on Publications Policy.

Dr. Hamburg will resume the editorship next year.

ASA Collection of Statistics Journals at National Bureau of Standards Library

An arrangement has recently been completed between the national office of the American Statistical Association and the Statistical Engineering Laboratory of the National Bureau of Standards, for deposit in the NBS Library of certain foreign statistical journals which are received by the ASA. By means of this arrangement, a number of journals which are not widely available in the U. S. will be retained in a central collection.

The series will begin in most cases with at least part of the 1958 volume of the journal; some earlier issues of some journals will be available. Items from the collection cannot be borrowed by individuals, but libraries of government and educational organizations will be able to obtain them through inter-library loan procedures.

The preliminary list of journals follows:

Allgemeines Statistisches Archiv (Munich)
Annales de Sciences Actuarielles (Louvain)
Annals of the Institute of Statistical Mathematics (Tokyo)
Bulletin, Société Mathématique de France (Paris)
Buletinul Institutului Politechnic Din Iasi (Jassy)
Cahiers, Séminaire D'Econométrie (Paris)
Calcutta Statistical Association Bulletin (Calcutta)
Bollettino, Centro Ricerca Operativa (Milan)
Demográfia (Budapest)
Giornale Matematica Finanziaria (Rome)
Instituto de Matematica y Estadistica (Montevideo)
Journal, Société de Statistique de Paris (Paris)
Journal, Institute of Actuaries (London)
Jaurnal, Statistical and Social Inquiry Society of Ireland (Dublin)
L'Institut de Recherches Economiques et Sociales, Bulletin (Louvain)
Mitteilungen der Vereinigung Schweizerischer Versicherungsmathematiker (Bern)
Population (Paris)
Proceedings, Pakistan Statistical Association (Pakistan)
Przeglac Statystyczny (Warsaw)
Revista de Psicologia General y Aplicada (Madrid)
Revista Brasileira de Estatística (Brazil)
Revista Matematica Hispano-Americana (Madrid)
Revist Universitatii "Al. I. Cuza", Institutului Politehnic (Jassy)
Rivista Italiana Economia Demografia e Statistica (Rome)
Sankhyā (Calcutta)
Schweizerische Zeitschrift für Volkswirtschaft und Statistik (Basel)
Statistica (Bologna)
Statistical News Letter (New Delhi)
Statistika Revija (Belgrade)
Statistica Neerlandica (Netherlands)
Statistisk Tidskrift (Stockholm)
Statisztikai Szemle (Hungary)
Studii Si Cercertari Matematica Si Fizica (Rumania)
The Economic Record (Melbourne)
The Philippine Statistician (Manila)
Bulletin, The Statistical Society of New South Wales (New South Wales)
Tôhoku Mathematical Journal (Japan)
Transactions, Manchester Statistical Society (Manchester)
Trudy Moscovskogo Matematicheskogo Obshchestva (Moscow)

B and E S Section Nominating Committee

A committee composed of C. Ashley Wright, Standard Oil Company of New Jersey, chairman; James W. Knowles, Joint Economic Committee, U. S. Congress; and Arthur Rosenbaum, Sears, Roebuck and Company, has been appointed to nominate officers for the ASA Business and Economic Statistics Section. Five positions are to be filled: Chairman-Elect (1961), Program Chairman-Elect (1961), Secretary-Treasurer (1960), Publications Chairman (1960), and Regional Activities Chairman (1960).

The Committee will welcome suggestions for nominees for these offices from members of the Section.

Annual Meeting of the Association for Computing Machinery

The Fourteenth Annual Meeting of the Association for Computing Machinery will be held September 1-3, 1959 at the Massachusetts Institute of Technology, Cambridge, Massachusetts. Papers will be presented in four areas of interest: data processing and business applications, automatic programming, digital and analog devices and logical design, and numerical analysis and applications.

Local arrangements will be under the direction of Professor F. M. Verzuh, Massachusetts Institute of Technology, who should be contacted for registration information.

Changes in NBS *Journal of Research*

A number of changes are being made in the *Journal of Research* of the National Bureau of Standards. After July 1, 1959 the *Journal* will be published in four separate sections, corresponding to subject-matter fields, which may be subscribed for individually. These sections are: A, Physics and Chemistry; B, Mathematics and Mathematical Physics; C, Engineering and Instrumentation; and D, Radio Propagation. The editorial scope of the *Journal* will also be broadened. In addition to research reports, review articles by recognized authorities and compilations of information on subjects closely related to the Bureau's basic mission will be presented. All NBS nonperiodical publications and articles by the Bureau staff in professional journals will be abstracted in the appropriate section of the *Journal of Research*.

Section B, Mathematics and Mathematical Physics, will present studies and compilations designed mainly for the mathematician and theoretical physicist. It will include topics in mathematical statistics, theory of experiment design, numerical analysis, theoretical physics and chemistry, and logical design and programming of computers. Short numerical tables will also be included from time to time. The newly appointed editor of the Mathematics and Mathematical Physics Section is Chester H. Page, Consultant to the Director, National Bureau of Standards. Associate editors are F. L. Alt, Assistant Chief, Applied Mathematics Division, and E. L. Crow, Boulder Laboratories, National Bureau of Standards. Section B will be issued quarterly, and may be ordered from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. at the subscription rate of $2.25 per year.

UN 1958 Statistical Yearbook

The tenth issue of the Statistical Yearbook, prepared by the United Nations Statistical Office, was published on March 31. The statistical authorities in over 150 countries or territories, as well as the United Nations specialized agencies and other inter-governmental bodies, cooperated actively in its preparation.

The Yearbook contains 612 pages and 187 tables relating to demographic, economic, financial, social and cultural subjects, covering ordinarily the immediate prewar period, 1948 and seven most recent years; some have been brought up to the middle of 1958. There are also subject and country indexes, and an appendix devoted to conversion factors. Two new tables have been added designed for the user interested in the broader economic aspects of international trade and its relation to changes in the production of primary commodities and manufactured goods: "World exports by provenance and destination" and "Trends in world trade since 1938 compared with trends in population and production." A new chapter of importance, entitled "Production Summary," gives weighted index numbers of volume (1953=100) which compare trends since 1938 in world production of primary commodities and in manufacturing. Of interest to statisticians and research workers is another new table, the "Weighting pattern for world and regional index numbers of industrial production" which shows in percentage form the relative importance of industrial production in 1953 between countries and regions within selected industries and between industries for each region and the world. There is also a new table summarizing international economic aid to under-developed countries 1954-1957.

The "Statistical Yearbook, 1958," may be purchased at $6.50 paperbound or $8.00 clothbound, from the International Documents Service, Columbia University Press, 2960 Broadway, New York 27, N. Y.

Job Opening

Research Analyst to conduct research projects in fields of driver improvement, traffic safety, and driver licensing. Applicants must be college graduates with course work in statistics and social sciences; and have three years of progressively responsible experience in technical research and statistical work. The position is located in Salem, Oregon, within sixty miles of the Pacific Ocean, Cascade Mountains and Portland. The salary range is $5760 to $7200, and a person may be appointed above the minimum of the range depending upon his experience and training. Applicants should contact the Oregon Civil Service Commission, 100 Public Service Bldg., Salem, Oregon.

Future Annual Meetings of the Association are as follows:

Year	*Place*	*Headquarters*	*Dates*
1959	**WASHINGTON, D. C.**	**SHOREHAM HOTEL**	**DECEMBER 27-30**
1960	**PALO ALTO, CALIF.**	**STANFORD UNIVERSITY**	**LATE AUGUST**
1961	**NEW YORK CITY**	**ROOSEVELT HOTEL**	**DECEMBER 27-30**
1962	**MINNEAPOLIS**	**LEAMINGTON HOTEL**	**EARLY SEPTEMBER**

International STATISTICAL ACTIVITIES

WORLD HEALTH ORGANIZATION

The monthly *WHO Chronicle* occasionally publishes comprehensive accounts of the work of the World Health Organization in various fields. Beginning with the issue of February 1959 (Vol. 13, No. 2), there is being published a series of articles on WHO's work in international health statistics by **Dr. H. S. Gear,** formerly Assistant Director-General, Department of Central Technical Services, WHO, and **Dr. Y. Biraud,** Director, Division of Health Statistics, WHO.

The first article is an historical introduction reviewing the development of health statistics and early work on international comparability, up to the time when WHO took over the functions of the League of Nations Health Organization.

—*WHO Chronicle*, Geneva

"INTERNATIONAL ECONOMIC REVIEW"

There is announced a new international journal, *The International Economic Review*, published by the Kansai Economic Federation with the collaboration of the Wharton School of Finance and Commerce, University of Pennsylvania, and The Institute of Social and Economic Research, Osaka University. The Chief Editor is **L. R. Klein** (Univ. of Pennsylvania); Co-Editor is **M. Morishima** (Osaka University).

The announcement states, in part, "The Review will be interested primarily in publishing articles on Quantitative Economics, including empirical works as well as those in mathematical economics and statistical theory related to quantitative aspects of economics. . . . The editorial principles and practices of the Review will be strictly based on academic freedom and will be entirely independent of any school of political thought. . . . Manuscripts should be written in English and submitted to either Professor Klein or Professor Morishima."

The Review will be published three times a year. The annual subscription price is $4.00 per year outside Japan (Y1,200 in Japan); subscriptions should be sent to

The International Economic Review
(Kansai Keizai Rengokai)
Osaka Building, Soze-cho
Kita-ku, Osaka, Japan

—L. R. Klein, M. Morishima, Editors
The International Economic Review

GERMANY, WEST

In October 1958, the **Statistisches Bundesamt** (Statistical Office) of the Federal Republic of Germany issued an up-to-date guide to, and comprehensive review of, its statistics under the title *Das Arbeitsgebeit der Bundesstatistik; Stand Mitte 1958.* An English version is in preparation and is expected to appear in the Spring of 1959. This 208-page publication contains detailed information on statistical organization, liaison with international organizations, use of sampling, as well as a bibliography by subject matter, excerpts from laws on statistics, etc.

—*UN Statistical Notes*
United Nations, New York

INDIA

The Annual Session of the **Indian Science Congress** was held in Delhi, January 21-28. The general President for the session was Dr. A. L. Mudaliar, Vice-Chancellor, Madras University, and the Statistics Section met under the Chairmanship of Prof. A. K. Bhattacharyya, Presidency College, Calcutta. Two symposia were held during the session: one on "1961 Population Census of India" and the other on "Role of Operational Research in Planning."

—*Calcutta Statistical Association Bulletin*

SWEDEN

The **Swedish Statistical Society** held seven ordinary meetings during 1958. The following addresses were presented at these meetings.

1. Economic protection against crop failure. H. Astrand, head of the Institute for Agricultural Investigations, Stockholm (February 28).

2. Contacts between statisticians in universities and administration. Professor Sten Malmquist, Stockholm (April 15).

3. Operations analysis. Docent Tore Dalenius, Stockholm (April 24).

4. Punched-cards and pagodas in Burma. Division Chief Axel Klintsell, Stockholm (May 21).

5. Economic barometers. First registrar Ake Lönnqvist, Stockholm (October 3).

6. Can we save on public statistics? Professor Gunnar Heckscher, Stockholm (October 29).

7. Remarks on the net price index. Professor Sten Malmquist (December 8).

—*Statistisk Tidskrift*, Stockholm

UNITED KINGDOM

The Industrial Applications Section and the Research Section of the Royal Statistical Society will hold a joint Conference at Loughborough College of Technology, during the weekend September 11-13, 1959.

—Dr. C. J. Anson
College of Technology, Birmingham

FEDERAL STATISTICAL ACTIVITIES

Quarterly-Flow of Funds-Saving Presentation

The Federal Reserve plans to begin regular quarterly publication of a combined flow-of-funds and saving and investment presentation in the July issue of the Federal Reserve *Bulletin* with data through the first quarter of 1959 and to continue quarterly publication thereafter with about a four-month lag. In the new presentation, estimates of sector and national saving and investment are to be presented within the framework of the flow-of-funds system of national accounts, and the structure of the flow-of-funds accounts has been adapted to accommodate the desired concepts of saving.

Estimates of current transactions, capital expenditures, and financial flows are given for 11 sector groupings: a consumer and nonprofit sector, three nonfinancial business sectors, two government sectors, four financial sectors, and a rest-of-the-world sector. (The specific detail on current account transactions shown in the tables differs from sector to sector; the most detail is recorded in the consumer and government accounts.) Saving and investment totals are shown for each of the domestic sectors and for the economy as a whole. Saving is defined in terms of current transactions, i.e., as the excess of current receipts over current expenditures and is shown both gross and net of capital consumption.

For each sector, gross saving is carried from the current transactions account to the capital transactions account, where the various forms of investment are recorded. Investment of each sector (and of the economy as a whole) is shown as the sum of net purchases of tangible assets and net acquisitions of financial assets less net increase in liabilities. Saving measured from the current account is conceptually equal to investment measured in the capital account; in practice, however, the two measures may not be equal because of statistical discrepancies.

In the measure of total national investment, financial claims owed and held within the domestic economy cancel out, and investment for the economy as a whole consists of the sum of private domestic sector purchases of tangible assets and the increase in net financial claims on foreigners. Government capital expenditures are omitted from the national and government sector investment totals because of unresolved conceptual and statistical problems in this area.

Tangible investment flows are shown with the following detail for each sector as pertinent: consumer durables, nonfarm residential construction, plant and equipment, inventory change. Financial investment flows are shown for each sector as pertinent in 21 financial transaction categories covering monetary and other deposit claims, securities, loans, insurance and pension claims, and other financial claims.

With the exception of depreciation on consumer durables, which is estimated at Federal Reserve on a current cost basis, capital consumption charges in the presentation are based on figures contained in the national income and product accounts and are on the same valuation basis used in those accounts, mainly original cost with the principal exception of farm depreciation, which is on a current cost basis.

In addition to sector accounts, the *Bulletin* quarterly presentation will contain a sector-by-transaction matrix showing the structure of financial and other capital account flows for the whole economy for the latest available quarter; a summary of saving and investment with detail by sector and by type of investment; and a summary of financial flows with detail by type of financial instrument and by sector. The quarterly tables are all in terms of transactions and flows; the estimates are, in general, seasonally unadjusted. In addition to the quarterly flow format, tables giving amounts outstanding for financial assets and liabilities at year-end, detailed by financial instrument and by sector, will be presented once a year.

The new presentation differs in several respects from the version of the flow-of-funds accounts published earlier by the Federal Reserve. These differences relate to sectoring, coverage and grouping of financial transactions, extent of netting in nonfinancial flows, a sharper separation between the current and capital elements of each sector account, the addition of "internal" entries between current and capital transaction accounts, and the inclusion of explicit series on saving.

Consumer, business, and government saving in this presentation differ from the corresponding series in the income and product accounts mainly because of differences in the treatment of consumer durables, government life insurance, government employee and railroad retirement programs, the internal saving of life insurance companies and mutual financial institutions, and corporate profits taxes.

In addition, there are statistical differences, as well as a few conceptual ones, between the individuals' saving series of the Securities and Exchange Commission and the investment side of the consumer sector of the flow-of-funds accounts. Work is now under way by SEC and Federal Reserve to eliminate as many of these differences as possible.

—Stanley J. Sigel, Chief, Flow of Funds and Savings Section, Division of Research and Statistics, Board of Governors of the Federal Reserve System

Description of Federal Statistical Programs

A revised edition of *Statistical Services of the United States Government* is being issued by the Office of Statistical Standards, Bureau of the Budget, early in June. This booklet is designed to serve as a basic reference document on the statistical programs of the U. S. Government. The present edition expands, revises, and brings up to date the edition issued in June 1952.

Part I describes the statistical system of the Federal Government. A section on "Organization" describes the procedures followed to achieve coordination within a decentralized statistical system, and distinguishes between the various types of statistical agencies. A section on "General Principles and Practices" describes the relations of Federal statistical programs to those of other governmental and nongovernmental organizations, the methods of collection and tabulation, and the presentation of data.

Part II presents brief descriptions of the principal economic and social statistical series collected by Government agencies. For each of about 50 subjects it tells what agencies are concerned and what kinds of data are collected and made available. The specific subjects are grouped under the following headings: demographic and social statistics; manpower, employment and labor statistics; price statistics and price indexes; production statistics; distribution and service trades; foreign trade and travel statistics; construction and housing statistics; financial statistics; transportation, public utility, and communication statistics; and national economic accounts.

There are also two appendixes, one describing the area of statistical responsibility for each agency and the other giving an annotated bibliography of more than 200 periodical statistical publications.

Copies of *Statistical Services of the United States Government* (111 pages, 40 cents) may be purchased from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Organization of the National Health Survey

The U. S. National Health Survey, authorized by the National Health Survey Act signed July 3, 1956 is now in its second year of full operation. During this period the organization of the survey program has become established along lines which reflect some of the special features arising out of the character of the program and the authorizing legislation.

A basic feature of the program is that the National Health Survey is not a single survey but a continuing program of related surveys, including:

1. The Household Interview Survey on Health—to collect nationwide health statistics on a continuing basis by interviews in households representative of the U.S. population. The data cover illnesses, impairments, accidental injuries, disabilities, volume of medical care, hospitalization, dental care, and other health items, all related to the demographic, social and economic characteristics of the population.
2. Special Surveys on Health—to assemble statistical data which are not suitably obtained by household interviews. An example is the Health Examination Survey now being developed to produce precise diagnostic data and biological measurements on a nationwide population sample.
3. Methodological Studies—to improve the techniques of collecting health statistics and to check the validity of data gathered in the overall program.

Internal organization and staff.—The Survey is located in the Division of Public Health Methods, Office of the Surgeon General of the Public Health Service. It is directed by Forrest E. Linder, assisted in a staff capacity by: Theodore D. Woolsey, Assistant Director; Walt R. Simmons, Statistical Advisor; Alice M. Waterhouse, M.D., and Ruth E. Dunham, M.D., Medical Advisors; James E. Kelly, D.D.S., Dental Advisor; and Margery Cunningham, Information Officer.

The operating staff is organized according to the different aspects of the Survey program. Planning and analysis of the Household Interview Survey are under the direction of Philip S. Lawrence. The Special Surveys, directed by O. K. Sagen, draw heavily on the time of the Medical and Dental Advisors and various temporary personnel, depending upon the projects under way at any time. The Methodological Studies are not conducted by a separate staff, since consideration of methodological problems and efforts to improve the collection techniques affect all phases of the Survey program.

Contract services.—The law establishing the National Health Survey authorized the Surgeon General to utilize by contract the services or facilities of any agency of the Federal Government, any appropriate State or other public agency, or any private agency, organization, group or individual. This provision has been used extensively, and as a result the Survey staff in the Public Health Service is largely a directing, planning and analytical staff.

The main instance of the use of the services of other agencies is the cooperative arrangement established with the Bureau of the Census, whereby the Census Bureau is responsible for many phases of the design and administration of the Household Interview Survey and participates in other activities of the program. In accordance with detailed specifications and requirements drawn by the Public Health Service, the Bureau of the Census designs and selects the household interview sample, conducts the field interviewing, edits and codes the questionnaires, and prepares tabulations. Most of the editing

and tabulation work is performed on the Census Bureau's electronic computers, with the Survey staff and the Census Bureau sharing the computer programming operations. Analysis and publication of the Survey results remain the responsibility of the Public Health Service.

Other portions of the Survey program have also been contracted to agencies where special skills or sources of data are available. Such contracts have been made particularly for exploratory methodological studies requiring access to existing medical records or other unique facilities or personnel. The following agencies have worked under contract arrangements with the National Health Survey: the National Opinion Research Center of the University of Chicago, Survey Research Center of the University of Michigan, Health Insurance Plan of Greater New York, National Office of Vital Statistics in the Public Health Service, Michael Reese Hospital of Chicago, and Georgetown University Medical Center.

Advisory groups.—Three standing advisory committees, concerned primarily with the interests of data users, have been established to assist in determining the content of the Survey program. One of these committees represents other bureaus and agencies within the Department of Health, Education, and Welfare, and another represents other government departments and agencies interested in the program. The third is a public advisory committee, representing nongovernmental agencies and interests in such fields as biostatistics, medicine, dentistry, public health, health insurance, health research, etc. For special advice on methodological problems a panel of consultants is available, including Philip Hauser of the University of Chicago, Philip McCarthy of Cornell University, Frederick Stephan of Princeton University, and others in more specialized technical areas.

—Forrest E. Linder, Director,
U. S. National Health Survey,
Public Health Service, Department
of Health, Education, and Welfare

BES Commuting Surveys for Standard Metropolitan Area Definitions

The Standard Metropolitan Area definitions, originally developed in 1950, have been under review during the past year by the Federal Committee on Standard Metropolitan Areas of the Bureau of the Budget. The review is being made in the light of the revised criteria for defining Standard Metropolitan Areas which were adopted by the Bureau of the Budget in March 1958.

Standard Metropolitan Areas, of which there are currently 187, are used throughout the government for purposes of compiling, presenting, and analyzing a wide variety of data on a uniform geographic basis. Within the Federal-State employment security system, Standard Metropolian Areas are generally used for labor market analysis purposes by the State employment security agencies.

Each Standard Metropolitan Area is made up of one or more complete counties (towns in New England) which meet certain specific criteria. Before an area can be set up as a Standard Metropolitan Area, it must first meet screening criteria which include population size and metropolitan character. Counties adjoining the central county may be added to the Standard Metropolitan Area if they meet the screening criteria and there is sufficient economic and social integration between the outlying counties and the central county. The criteria for economic and social integration relate primarily to the extent of worker commuting between the outlying counties and central county. The Bureau of the Budget has placed the responsibility for determining the volume of worker commuting with the Bureau of Employment Security and its affiliated State employment security agencies.

The Federal Committee on Standard Metropolitan Areas has reviewed the boundary definitions of all Standard Metropolitan Areas to ascertain from data available in Washington where commuting studies might be undertaken to improve existing area boundaries. The State employment security agencies have also been asked to review the definitions of areas in their States and to identify those areas where they believed that changes might have taken place since the areas were originally defined which might necessitate revision of the area boundaries. The review by both the Federal Committee and the State employment security agencies indicated that worker commuting studies should be conducted in about 80 areas.

To assure uniformity in the worker commuting studies, the Bureau of Employment Security prepared a handbook for use as a guide to the State employment security agencies conducting these studies. The basic method followed involved obtaining information directly from a stratified sample of employers on the number of workers who lived in the outlying counties (or towns) and worked in the central county (or town). The information on commuting, when received from the State agencies, is evaluated by the Bureau of Employment Security and forwarded to the Bureau of the Budget for use in review of area definitions. Studies of this type have been made by the State agencies, in cooperation with the Bureau of Employment Security, in about 50 areas. In 30 other areas where the extent of integration was less of an issue, the State agencies have analyzed unemployment insurance claims records to obtain information on the number of claimants for unemployment insurance who worked in counties other than the county in which they reside.

Definitions for 163 Standard Metropolitan Areas were released by the Bureau of the Budget early in May, including 8 new areas, 15 amended area definitions, and

140 unchanged areas. Definitions of 24 areas were still under study, scheduled for completion early in June.

—Vladimir D. Chavrid, Chief, Division of Special Studies and Research Development, Office of Program Review and Analysis, Bureau of Employment Security, Department of Labor

National Science Foundation Establishes Office and Advisory Committee for Social Sciences

The National Science Foundation is placing increased emphasis on its program in support of basic social science research by establishment of an Office of Social Sciences and appointment of an Advisory Committee for the Social Sciences to advise on program and policy. In making the announcement the Foundation stated that support of basic research in the social sciences "is invaluable in assisting social scientists to improve their research techniques, to accumulate fundamental knowledge about human behavior and society, and to develop sound theoretical bases for further inquiry."

Henry W. Riecken, who has been Program Director for Social Science Research, has been named Head of the Office of Social Sciences. Members of the new Advisory Committee are: Leonard S. Cottrell, Social Psychologist, Russell Sage Foundation; Fred Eggan, Professor of Anthropology, University of Chicago; John Gardner, President, Carnegie Corporation of New York; E. Pendleton Herring, President, Social Science Research Council; Joseph Spengler, Professor of Economics, Duke University; S. S. Wilks, Professor of Mathematics, Princeton University; and Dael Wolfle, Executive Secretary, American Association for Advancement of Science.

Report on "U. S. Income and Output"

A comprehensive report on the postwar growth of national income and product, entitled "U. S. Income and Output," has just been released by the Office of Business Economics as a supplement to the *Survey of Current Business*. The new volume introduces a revised and greatly expanded set of national income statistics, which will be carried forward in future issues of the Survey.

The estimates presented in "U. S. Income and Output" supersede those given for the postwar period in the "1954 National Income Supplement" and the 1955-57 National Income numbers of the Survey. The 1954 supplement remains the basic sources for detailed figures for 1929-46, as well as for descriptions of the conceptual framework and general statistical foundations of these figures. The statistical revisions made in the present volume utilize certain important new benchmark data, from the 1954 censuses and other sources; also reflected are a number of methodological improvements suggested by a systematic review of the estimating procedures previously used.

The report opens with an analysis of economic developments since World War II as seen through the national income accounts. The rapid growth of output—real GNP is two-fifths above 1947 in the aggregate and up one-fifth on a per capita basis—is examined in detail and set in the perspective of a 50-year historical record. The postwar expansion of regional markets and of family income and buying power are summarized from studies by OBE of the geographic and size distributions of income. Several chapters deal with the evolution of the national income measures, the new departures introduced in the report being viewed against the background of the Commerce Department's quarter-century of work in the field of income research. Major elements of a possible future program are discussed as well.

In the Statistical Section, the new standard set of tables is organized around a streamlined five-account system which summarizes for producers, marketers, and analysts generally the composition of the major income and output flows. Many of the tables carried in previous national income reports have been redesigned, and many new tables have been added with the aim of serving the users' interest in the following broad topics: gross national product and national income aggregates (18 tables); personal income and outlay (13 tables); government receipts and expenditures (11 tables); foreign transactions (16 tables); saving and investment (15 tables); and income and employment by industry (19 tables).

Reference materials of more specialized interest—including such data as the implicit price deflators for GNP by legal form of organization, and the reconciliation of OBE and IRS corporate profits—are brought together in a final group of 19 supplementary tables at the end of the Section.

"U. S. Income and Output" (241 pages) is available at $1.50 per copy from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., or from the Field Offices of the Department of Commerce.

Development of Program of Information on Scientists and Engineers

The National Science Foundation, at the request of the Bureau of the Budget, has accepted the "focal agency" responsibility for guiding the development of a program of national information on scientists and engineers. This step accomplishes one of the major recommendations of the report, "A Program for National Information on Scientific and Technical Personnel," which was submitted to the Bureau of the Budget by the National Science Foundation last September.

The report was based largely on the findings of the Advisory Panel on Scientific Manpower Data Requirements. This panel was established in 1957 under the joint sponsorship of the National Science Foundation,

which had been asked by the Bureau of the Budget to develop a coordinated plan for statistics in this area, and the President's Committee on Scientists and Engineers. Members of the panel were: Philip M. Hauser (chairman), University of Chicago; Philip H. Coombs, Fund for the Advancement of Education; Henry David, National Manpower Council; Coleman R. Griffith, American Council on Education; Merriam H. Trytten, National Academy of Scientists, National Research Council; Ralph J. Watkins, Brookings Institution; and Dael Wolfle, American Association for the Advancement of Science. Staff services to the panel were provided by Surveys and Research Corporation, under contract with the Foundation.

In transmitting the report to the Bureau of the Budget, Alan T. Waterman, Director of the Foundation, stated that available data are "painfully inadequate" in view of the demands for information on the nation's resources of scientific and technical personnel. A program of fifteen projects was recommended to provide information needed to answer the most crucial questions, including the following three projects designated as "most urgent":

Identification of scientific and technical occupations.—Analysis of work content and job descriptions in scientific, technical and related fields, to develop a set of job definitions and a classification, and to develop methods for identifying these occupational categories with adequate precision when conducting such surveys.

Pool of scientific and technical personnel.—A periodic survey, using appropriate sampling techniques, of organizations and agencies of all types which are employers of scientific and technical personnel, to obtain information on the numbers and characteristics of such personnel. From time to time intensive analyses, through personal interviews, of a subsample of present and former scientific and technical personnel, to determine the number, occupation, and economic and personal characteristics of these persons; and to obtain information concerning the nature of movement into and out of the supply.

Periodic study of the demand outlook for various categories of scientific and technical personnel in each major activity.—The study would include the analysis of: (a) employment and production growth trends; and (b) the changing roles of particular classes of scientific and technical personnel, to develop current estimates and forecasts of demand for such personnel by occupation and educational levels.

Other projects, designated as "urgent," would develop information on such subjects as supply and utilization of scientists, enrollment in science and engineering courses, and curricula and facilities in teaching science and engineering; and would promote research on such subjects as aptitudes in and attitudes toward science and engineering, and determinants of demand for scientists.

The report from the National Science Foundation was referred for comment by the Bureau of the Budget to a number of Federal agencies including agencies which produce statistical data on scientists and engineers, formulate policy on Federal science and engineering programs, or are major employers of scientists and engineers within the Federal Government. The agency replies not only were overwhelmingly favorable to the recommendations as a whole, but also expressed a sense of urgency in implementing specific projects.

The Bureau of the Budget expressed its concurrence in these views in a letter, dated April 13, to Dr. Waterman from Raymond T. Bowman, Assistant Director for Statistical Standards. This letter requested the Foundation to accept responsibility for guiding the development of the program, and outlined the responsibilities of the "focal agency" in the area.

—Margaret E. Martin,
Office of Statistical Standards,
Bureau of the Budget

Among Recent Publications—

Factory Workers' Earnings, May 1958—Initial Report, issued by the Bureau of Labor Statistics. Provides detailed distributions and averages for all production workers by region, metropolitan and nonmetropolitan areas, and by industry. Particular attention is paid to the differences prevailing in the South, although complete distributions for broad industry groups are also presented for the Northeast, North Central, and Western regions. A final report, to be issued late this summer, will include data for all nonsupervisory employees and an analysis of the current data and the changes which have occurred since April 1954, when a similar survey was made. Initial report available from the Division of Wages and Industrial Relations, Bureau of Labor Statistics, Department of Labor, Washington 25, D. C.

Earnings in Wholesale Trade, June 1958—Summary Release, issued by the Bureau of Labor Statistics. Reports the first wage distribution survey conducted in wholesale trade. The summary release provides data for the United States and four regions. It is limited to merchant wholesalers, agents or brokers, and assemblers of farm products. It excludes outside salesmen, but includes all other nonsupervisory workers. The final report, to be issued late this summer, will contain data by wholesale line, metropolitan area, and size of company. Summary release available from the Division of Wages and Industrial Relations, Bureau of Labor Statistics, Department of Labor, Washington 25, D. C.

Indexes of Production (1954 Census of Manufactures, Vol. IV), published jointly by the Bureau of the Census, Bureau of Labor Statistics, and Federal Reserve Board. Three sets of indexes based on different weight periods (1947, 1954, and an average of prices in the two years)

are shown for individual industries (SIC 4-digit), industry groups (SIC 3-digit), major industry groups (SIC 2-digit), and all manufacturing. Indexes for the entire period since 1899 on a 1947 comparison base are also shown for total manufacturing, major industry groups, and selected individual industries. Available at $2.00 a copy from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., or from field offices of the Department of Commerce.

Health Statistics from the U. S. National Health Survey —Series B 8, "Persons Injured, By Class of Accident, July 1957-June 1958," issued by the Public Health Service, Department of Health, Education, and Welfare. Adds further details to those already published by the Public Health Service about the 47,000,000 persons who sustained injuries that involved medical attention or restriction of activity during the year ended June 30, 1958. In 34 tables the report shows by age, sex, and urban-rural residence new data on total number of persons injured, number of persons with activity-restricting injuries, number of persons with medically-attended injuries, and number of person-days of restricted activity. Accidents are shown by four classes (motor vehicle, at work, at home, and other and unknown) and by six major activities (preschool, usually attending school, usually working, usually keeping house, retired, and other). Restriction of activities is broken down to show, separately, bed disability, days lost from work, and days lost from school. Also, the injuries are related to family income and, by class of accident, to the hospitalization resulting from the injuries. Available at 40 cents a copy from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Social Security Programs Throughout the World, 1958, issued by the Division of Program Research, Social Security Administration, Department of Health, Education, and Welfare. Brings up to date the information on social security programs of the world presented in an earlier report issued in 1954, and summarizes the principal provisions of these programs in 22 pages of text and 93 pages of charts. The programs covered include old age, invalidity, and survivors insurance; health and maternity insurance; old-age insurance; family allowance programs; and work injuries insurance. Available at $1.00 a copy from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Occupations in Electronic Data-Processing Systems, issued by the Bureau of Employment Security, Department of Labor. Designed to meet a rapidly growing need for job information related to the processing of large masses of business and scientific data by means of high-speed electronic computers. Descriptions of thirteen basic occupations in this area are presented, including the educational and experience requirements usually encountered and estimates of a number of traits demanded of the worker by the job. Also included are a process flow description, glossary of technical terms, and extensive bibliography. Available at 25 cents a copy from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

1958 PROCEEDINGS OF THE SOCIAL STATISTICS SECTION

The first publication of the *Proceedings* of the Social Statistics Section of the American Statistical Association is now available. This issue contains the papers and discussions presented under the sponsorship of the Social Statistics Section at the Annual Meeting in Chicago, December 27-30, 1958. The *Proceedings* include topics on smoking and lung cancer, tranquilizing drugs, population growth and changes, cost of living and inflation, family size, the 1960 population census, health services, and statistical tools for the social scientist.

The 1958 *Proceedings* of the Social Statistics Section represent an experimental undertaking and can be conducted in future years only if the membership of the Association exhibits sufficient interest. Copies of the *Proceedings* can be ordered from the Secretary's office of the American Statistical Association. Cost to members: $2.25; for non-members, $2.75 ($.25 will be added to the invoice if order is received without remittance).

Order your copy from:

AMERICAN STATISTICAL ASSOCIATION
1757 K STREET, N. W.
WASHINGTON 6, D. C.

GOVERNMENT OF CANADA STATISTICAL ACTIVITIES

Revision of DBS Standard Industrial Classification

A revision of the *Standard Industrial Classification Manual (1948)* of the Dominion Bureau of Statistics has recently been completed. The revised manual will be issued about the end of this year.

The revised classification distinguishes some 300 three-digit industries in 11 industry divisions. It is expected that most of the industrial series published by the Dominion Bureau of Statistics (e.g. Census of Industry, Population Census, Monthly Employment Statistics) will produce statistics at substantially this level of detail. Some of the series, however, will not be able to publish figures for all three-digit classes, particularly in certain industry divisions.

In addition to revising the classification structure, the committee has devoted a good deal of attention to problems of basic definition and concept, particularly those related to implementing the classification. Conceptually it would be desirable to have a uniform definition of the establishment so that data obtained by applying the classification in any field could be used in conjunction with those from other surveys. The aim is to achieve sufficient uniformity in the definition of the establishment in practice that comparable data can be obtained at the national level. It is realized that to obtain information for particular areas and to meet the needs of particular users, data must be obtained also for units other than establishments. Thus, in addition to providing establishment data, each survey will produce the special tables required for its particular purposes. In addition, the various divisions of DBS can develop their own fourth-digit classes within the standard three-digit framework.

The revised classification combines the former divisions for Transportation, Communication and Storage; and Public Utility Operation into one division for Transportation, Communication and Other Utilities. In addition, it provides a separate division for Public Administration and Defence. In the Manufacturing Division the revision departs farther from the criterion of chief component material than was done in 1948. Thus the new classification contains more major groups in manufacturing and the new groups are based on technical considerations and "purpose" or "use" criteria. A change has been made also in the classification of establishments primarily engaged in repair work. These were included formerly in the Manufacturing Division but in the revised classification each type of repair establishment is classified to the division in which the major portion of that kind of repair work is done. Thus, motor vehicle repair garages are included in the Retail Trade group because the majority of motor vehicle repair work is done by establishments primarily engaged in Retail Trade and not in specialist repair garages. In those few cases where repair work is done almost exclusively in specialist repair establishments (e.g. shoe repair) the industrial class for the repair establishments is included in the service Industry Division.

—N. L. McKellar
Consultant on Classifications
Dominion Bureau of Statistics

Royal Commission on Canada's Economic Prospects

The research staff of the Royal Commission on Canada's Economic Prospects undertook a number of statistical studies of the Canadian economy which have been published in separate volumes by the Queen's Printer, Ottawa. These studies include *Output, Labour and Capital in the Canadian Economy* by Wm. C. Hood and Anthony Scott; *Consumption Expenditures in Canada* by David W. Slater; *Canadian Commercial Policy* by J. H. Young; and *Financing of Economic Activity in Canada* by Wm. C. Hood (which includes a presentation of National Transactions Accounts for Canada 1946-1954); as well as a number of studies of particular industries. A complete list of these studies may be found in Appendix C of the *Final Report* of the Royal Commission on Canada's Economic Prospects (Ottawa: Queen's Printer, 1957).

National Accounts, Income and Expenditure

A revised set of annual National Accounts for Canada was published last year in *National Accounts, Income and Expenditure, 1926-1956* of the Dominion Bureau of Statistics and in *National Accounts, Income and Expenditure, 1955-1957*. These revisions incorporate the results of the 1951 Censuses and other statistical revisions going back to 1926 as well as some changes in concept. A detailed description of the conceptual framework of the Accounts together with a description of the sources and methods are included in the 1926-1956 publication. A revised quarterly series has been published in *National Accounts, Income and Expenditure, by Quarters, 1947-1957*.

Surveys of Non-Farm Family Incomes and Finances

A second survey has been undertaken in May of this year to obtain data on incomes, holdings of selected liquid assets, and selected items of indebtedness of non-farm families in Canada. A sample of about 7,000 households selected within the framework of the sample for the Labour Force Survey but using households not in

(Continued on page 25)

CONDUCT OF COOPERATIVE FIELD AND CLINICAL TRIALS*

B. G. Greenberg, University of North Carolina

Introduction.

During recent years, there has been a steady increase in the number of the cooperative field and clinical trials to evaluate new drugs and therapies in cardiovascular disease, arthritis, mental disease, cancer, cerebral palsy and others. The cooperative study stems from a need to have more patients for a special investigation than are immediately available in any one institution. Results can thereby be obtained more quickly as well as more efficiently because the usual problems of long-term studies are avoided.

The problems of coordination and inter-laboratory variation which arise in the cooperative field trial are substituted for those of long-term studies. The latter studies must consider the errors caused by the trend in changes of the disease, by changes in the diagnostic methods and therapy as well as by the variation resulting from differing personnel involved in all of these phases.

Owing to the growing importance of the cooperative study in the field of health research, it seems worthwhile to enumerate and discuss briefly certain aspects for consideration in planning and conducting such studies. These aspects may not be obvious to those whose experience is limited to the single institution study.

A. *Participating Institutions.*

1. The institutions should be roughly comparable in facilities, equipment, standards, personnel and capable of dealing with local problems of management and administration as they occur. When one center begins to overshadow others in number of patients treated, there will be a tendency toward domination and movement away from a cooperative endeavor.
2. All participants must agree to abide by the protocol (see Section B) decided upon by the group.
3. The institutions should be financially stable and not dependent upon the particular study for continuity. A moderate period of continuing support should be guaranteed for the study at the outset because learning to work effectively as a team may require as much as one year.
4. It is essential that the institutions have freedom of publication. Furthermore. the absence of *direct* supervision by the fund-granting agency is equally desirable regardless of whether it is a government agency or a philanthropic foundation but especially so if the latter is a fund-raising one. A certain degree of flexibility to allow the institution some discretion in disbursing funds for the conduct of the study must be permitted.
5. Meetings should be rotated among the institutions so that all the participants are familiar with the locale, local personnel, and other factors involved in assessing the reliability of reports from the other centers.
6. The chairman of the group should be a member of one of the centers and have the respect of the other participants. He should be research-oriented as well as thoroughly grounded and expert in the subject under investigation.

B. *Provision for a Protocol.*

The protocol is analogous to the Constitution and By-Laws of a social, civic, or professional group. This means that there should be, in writing, an agreement to endeavor to find an answer to most of the questions that logically can be expected to be raised during the study. The protocol must include the following points as a minimum:

1. *Define the objective(s) of the study.* For example, the participants must decide whether the aim of the study is to be a long-range one in terms of the reduction of mortality or a short one in terms of let us say, reducing the size of a lesion. Agreement on this point will make items B2 and B5 easier.
2. *Define the disease and the patients who are eligible for inclusion in the study.* This should be as objective as possible in terms of currently accepted standards of diagnosis. There should also be agreement whether or not the study is limited to previously untreated patients, and if not, which prior treatments will be acceptable. In accepting patients, efforts should be made by the participant institution to assure that the patient will cooperate and can return for necessary periodic visits.

   Each institution should keep a log of all patients who are diagnosed with the disease under question and record the reasons why those not used in the study were excluded. This will be of some guidance in ascertaining that centers are treating patients of approximately equal severity.
3. *Describe the drugs to be administered in terms of*

* Supported in part from a contract with the Cancer Chemotherapy National Service Center, Public Health Service. I am indebted to Professor J. O. Irwin for helpful discussion and critical comments.

dosage and frequency. The dosage might be a fixed amount, an amount proportional to age or body size, or the maximum tolerable. If the latter, there should be complete prior agreement about the laboratory and clinical findings that are to be observed in order to establish that the true maximum has been attained. The protocol should include steps to be taken by the participant center to ascertain whether or not the patient is actually taking the drug.

The need for inclusion of a placebo or control group has been well accepted in most medical studies today. If an internal comparison between two new drugs is not planned, the need for a control group involving a placebo is strengthened if not mandatory. If temporary withholding of any treatment may be injurious to the patient, the control treatment should be the best known or standard treatment currently available. The new drug will ordinarily have been processed through some animal screening and based on these and other preliminary results further experimentation is warranted. Something should be known about the test drug's toxic effects, but even if this is the case, attempts should be made to document them and to learn about unsuspected ones.

4. *Other therapies* that can be administered during the trial should be specified in advance with the criteria to be used for administering this supplemental treatment. For example, during cancer chemotherapy trials, it may be necessary to administer X-ray therapy or steroids either to relieve pain or when a danger signal has indicated the desirability of their use. Of course, the frequency with which such supplementation is needed on each treatment should be recorded.
5. *The time limit of the study must be specified in advance*. If the patient is removed from therapy before termination, there should be prior agreement as to what justification exists for this, and whether or not such removal indicates failure of the therapy. In general, of course, premature removal from the study represents a failure, but there may be exceptions.
6. *All measurements* that are to be made pre-trial, their frequency during the trial, and those to be made at termination, should be specified in advance and standardized insofar as possible. The measurements need not always be objective, e.g., laboratory tests. In laboratory tests, efforts should be made to standardize the procedures, reagents and other elements known to affect the results. If measurements are subjective, extra efforts should be made to measure errors both within and between observers.

The measurements should be sufficiently detailed to provide adequate knowledge for experts to make a final decision about the varying degrees of success attained by the therapy. All measurements should be made by observers who are not aware (if possible) which particular treatment was administered. This is always possible when the therapy involves a material. Whenever a service is involved in therapy, such as surgery on the outside of the body or psychiatric counselling, true blind measurements may not be possible. In such cases, experience has shown the desirability of maximum concealment from the observer regarding the identity of the treatment.

Some clinicians involved with the therapy or measurement of results may object to concealment of the drug's identity on the grounds of liability to malpractice suits. This concept of medical experimentation, nevertheless, is well accepted by courts today provided the patient's permission has been obtained and another physician knows the true identity of the drug prescribed to protect against overdosage and to warn about pending danger signals. It is interesting to observe that the very same clinicians also frequently claim that the patient's reactions are so different for the various therapies that they can identify the drug anyway. There are two rebuttals to this claim:

1) Challenge the clinicians to a test, if the reactions are fairly similar, to see if they can identify which drug was really used.
2) If the reactions are radically different, point out that since the doctors can probably guess which treatment was used, they really are not conceding much if the statistician's whim about blind measurement is granted.

7. *Reports* that are to be rendered to and by the statistical center should be agreed upon.
8. *Measurement of side and toxic effects* should be uniformly recorded by all centers.

C. *Statistical Center.*

This is a consulting group responsible to the whole team although the problems encountered usually bring them into closer contact with the team's chairman. The functions of the statistical group are:

1. To help design the study, prepare the protocol, and to assist in the conduct of the study to be reasonably sure that the results are likely to answer the questions. See Section E for design of study.
2. To design all forms on which data are to be recorded. This includes the basic report forms as well as graphs or body outlines on which x-ray

results can be summarized. In this connection, the reporting forms can be designed so that carbon copies of the report are retained by each participant institution. The use of no-carbon-required paper and photo reproduction methods are helpful in this respect.

3. To collect the basic data from the centers. To implement this, the center should keep a file for each patient as soon as he is admitted to the study and should contact participating centers when there is an undue delay in receiving periodic reports about that patient.
4. To prepare monthly progress reports for each institution. These reports consist of four basic tables:
   i. New patients entering study during the month
   ii. Patients leaving study during the month
   iii. Cumulative total of patients enrolled up to the end of the month.
   iv. Cumulative total of patients who have completed the study up to the end of the month.

   If there is a classification of the number of patients by drug, care must be used so that the coding scheme of identifying the drugs is not revealed in the progress reports.
5. To help to standardize the measurements and laboratory tests by measuring between and within laboratory variation.
6. To distribute the drugs to the centers, if possible. This will help to assure that the identity of the drugs is not revealed. Storage and distribution are usually best done in cooperation with a nearby pharmacy. Records should be kept concerning amount of drugs distributed, amount remaining, etc. If the study is to continue over a period of time during which the potency of the drugs may undergo change, steps should be taken to assay their potency or activity from time to time. At the time of evaluation, a separation of the results into earlier and later phases of the study may indicate whether or not there was any change in the drugs.
7. To develop the randomization scheme to be used. It is best to number a series of cards that are inserted in sealed envelopes. Each participant center has its own set which it uses by selecting and opening the uppermost envelope after each new patient has been accepted. On the card, the identity of the drug should be recorded. If the card is in the form of a post card addressed to the statistical center, the participant institution can enter the name of the patient, the date, and mail the card to the statistical center.
8. To record the results of the joint decisions on the degree of success of the treatment at periodic meetings of the participants. The statistical center should photo-reproduce copies of all pertinent data from each patient to be considered by the participants at the meeting. In doing this, the nature of the drug should not be revealed.
9. To help in the analysis and interpretation of the data as well as to assist in the preparation of the reports.

D. *Randomization*

1. Separate randomizations for each institution and major variations of the disease (severity, stage, or different diagnosis) are desirable. This procedure can be regarded essentially as stratification of patients, according to institution and variation of disease, with a separate randomization within each stratum.
2. Even when the total sample size is specified in advance, it is usually impractical to designate the relative contributions from each individual stratum or combinations of them. Since centers will not obtain patients at the exact rates that were anticipated at the outset, there would be an unnecessary delay if the study waited until each center had filled its quota. This means that when the number of patients from each center is not predetermined and is also small (let us say, less, than 10), and if the scheme of randomization in each stratum had been completely at random, then the resultant total sample will ordinarily contain a disproportionate number of individuals on each drug.

   This disproportion can be minimized, or practically avoided, by imposing a restriction upon the randomization scheme within each stratum. For example, one might equalize the frequency with which the drugs are employed at each center by using on every four patients one of the six possible sequence sets as follows:

   A B B A
   A B A B
   A A B B
   B B A A
   B A B A
   B A A B

   In making the randomization sequence, one of the six possible sets is chosen for every group of four patients at an institution. Another restricted design that equalizes the frequency on every four patients is to consider only the first and sixth sequences as possible choices. This design, usually referred to as a sandwich because of its appearance, viz. ABBA, or BAAB, has an extra advantage to recommend its adoption. In the

event that a drug is losing its potency or activity during the course of the study, or there is a trend in patient selection and management, the sandwich design also balances itself so that each drug gets its fair share of the good and the bad.

If the randomization scheme is restricted by one of these designs, or any other, there are two considerations which the statistical group should take into account. The first of these is the effect which this restriction may have upon the estimates of the drug's therapeutic ability which, in turn, is also related to the validity of the test of significance used in the analysis. There is definitely no bias in designs which select at random from a restricted population of possible permutations as shown herein, and it is probable that the effect upon tests of significance is negligible. For example, it is known in the sandwich design that the appropriate analysis is to consider it as a 2 X 2 latin square design. If this is ignored and the analysis made as if there had been complete randomization, the row and column effects are being disregarded and combined into the error term.

The second consideration to be taken into account with restricted randomizations is the selection bias that may be introduced because the experimenter who can correctly guess the identity of the next treatment might be influenced by such knowledge. For studies which are double-blind, this problem of selection bias, as discussed by Blackwell and Hodges [2] does not arise. For studies which are not double-blind, the advantage of trying to balance the number of patients on each drug by restricting the randomization must be weighed against the probability that an investigator will indeed perceive the pattern under use. The latter probability is minute, if not nil, when the number of patients coming from any one center is less than ten. The probability is unlikely to be much increased even when twenty-five or fifty patients originate in one institution.

The author has never had an investigator raise a question about the order in a randomization sequence although it is always a possibility. Equalizing the frequency of the drugs on every two patients* has not been suggested for that very reason. This pattern is one that appears to be quickly discernible. An investigator will note readily that every even patient is on a drug different from every odd patient (This is also true of the sandwich design). The statistician must, therefore, be prepared to change his strategy from time to time to avoid this. If the drugs are administered on a double-blind basis, the strategy can be further concealed by using two or more sets of letters for every treatment. That is, A and D might represent the control drug with B and C representing the experimental drug.

3. Inasmuch as all patients are not immediately available for therapy, a waiting period develops before sufficient patients present themselves in the clinic or hospital. Thus, even if one wanted to match or pair patients, this aspect of timing would make it not only wasteful but probably impossible. It is much better to stratify patients to adjust for initial factors that are known to have an effect on the outcome (age, race, sex, severity, etc.), and to have separate randomizations for the major factors. Use should also be made of the analysis of covariance to remove any bias as well as to reduce the estimate of error caused by these other factors.
4. The randomization procedure is best carried out with cards in sealed envelopes. If the drugs are coded for a double-blind study, the identifying code should be in the hands of the statistical center, the pharmacist who helped to distribute the drug for the statistical center, as well as a responsible individual at the participant institution, either another physician or the local pharmacist.

E. *Design of Study.*

1. In designing the study, a question about the number of patients that will be necessary is an inevitable one. A true sequential study is difficult to carry out among several institutions for several reasons.
   i. The coordination of reports from several centers makes it difficult to decide whether the sequence should be based upon the time the patient enters the study, the time he leaves it, or upon the date of receipt of the final report.
   ii. If the results during the course of the study indicate one drug is better, additional reports from other centers may come in shortly thereafter and the new results vitiate the previous findings. The question of significance level is an especially difficult one when a truncated design indicates that there is no difference between drugs and then a sequence of reports comes in favoring one drug completely.
   iii. Many of the cooperative studies cover a minimum period of three months of therapy and observation. After concluding that one

* This would be restricting the possible given sequences to the first, second, fifth and sixth ones shown.

drug is better and not accepting any new patients, the question arises about what should be done with results of those patients already on therapy but not yet completed.

In most cases of cooperative investigations, the use of a fixed sample size will be the logical procedure to follow. Although the sample size may be fixed in advance, it is not necessarily good practice to adhere rigidly to this sample size as if the number were sacrosanct. There is even a strong likelihood that this fixed simple size was determined out of ignorance about the magnitude of the effect or the variation to be encountered. Early results of a study may, in fact, indicate a drug to be extremely unsuitable for further experimentation. In that event, such therapy may be abandoned according to the method of Savage [3]. The foregoing procedure has an element of sequentialization in it. Although the true sequential trial may not be practicable in cooperative studies for the reasons outlined previously, certain principles of sequentialization can be introduced according to the work of Armitage [1].

2. The design should include a placebo or the best available treatment.
3. The double-blind procedure is most desirable. If not possible, (see earlier discussion) at least keep the observer blind as well as the person who decides upon the eligibility of patients and is in contact with them.
4. The one-sided test may be more appropriate than the two-sided one in many cases where a new treatment is being compared with a standard one. In such instances, the experimenters are usually interested in obtaining something better and not to learn whether or not there is any difference between two therapies. When two or more treatments plus a control are being compared, the one-sided test will not be applicable because it is not known beforehand which of the two treatments will turn out better.
5. In many of these studies, the experimentation may be in an early stage with the investigators looking for clues so that the conventional levels of significance may require alteration. The experimenters may not want to miss a potentially good drug and are willing to consider the trial as preliminary to a more intensive investigation. That is, the investigators may be willing provisionally to accept a new treatment as potentially better with a relatively high risk of finding out later that it was not so. In such cases, the probability of an error of the first kind, viz. α, should be larger than usual, as much as 10% or 20%. Similarly, the probability of an error of the second type, β, might be smaller than usual—as low perhaps as 5% in some studies. This will raise the power of detecting a good treatment, $1-\beta$, to as high as 95%. In any event, the statistical group should discuss several different levels of α and β with the investigators and be careful to point out the values given by the data in a fixed sample size study.

F. *Criteria of Evaluation.*

1. There are many variables, both objective and subjective, that are useful in evaluating performance. Although the final result of the new drug may be judged a failure, certain diagnostic tests or variables may have reacted favorably. This information is very valuable to drug producers who are looking for promising clues in making new compounds. Therefore, all measurements should be analyzed separately as well as by multivariate methods.
2. The participant centers should agree to meet periodically to determine if the patient was qualified for admission in the first place as well as to decide what the combined evidence points to in an overall evaluation. This evaluation can be based upon a success or failure classification, a 3-point, or a 5-point graded scale if there is no satisfactory continuous variable available.
3. There should be provision for a periodic review of the criteria being used in the study to decide whether the measurements, procedures, etc. should be revised. For example, the group may decide that the long-range effects of the therapy can not be measured and a concentration upon intermediate objectives substituted.

G. *Summary*

The recent rapid growth of cooperative clinical and field trials in health research is likely to continue at a fast pace because of the increasing popular demand for new drugs and better therapies plus the fact that the whole effort is pervaded by a sense of urgency. To the statistical consultant, the cooperative endeavor offers new and stimulating challenges that must be met immediately. Certainly, not the least of these challenges is learning to work with several principal investigators who are at differing levels of statistical comprehension and in being able to help coordinate their efforts in one direction.

In the cooperative study, the statistician may relearn the value of a written protocol that spells out in detail

(Continued on page 28)

A NOTE ON
STATISTICAL TECHNIQUES IN COMMUNIST CHINA

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I. Introduction.

Communist China has a land area greater than that of the United States (including Alaska) and a population nearly four times that of the United States. In the midst of a gigantic industrialization program designed to bring her industrial capacity up to that of Great Britain by 1972, she has issued a spate of data pertaining to her economy over the last decade which has been reproduced in a wide variety of technical journals and popular periodicals all over the world. These data have dealt with agricultural and industrial production, domestic and foreign commerce, prices, productivity, taxation, research and development, and other aspects of China's economic growth. For the most part, the publications which have reproduced the data have done so uncritically. They have not done very much more than reproduce tables and charts which were issued by the Chinese Communist Party for the express purpose of holding or winning converts at home and abroad. Only on relatively rare occasions and generally in passing have the data been appraised from an economic statistician's point of view. The function of this study is to provide a first approximation to a remedy for the deficiency.

II. Statistical Problem Areas.

1. General Problems

Final-type statistical data cannot be any better than the raw material of which they are composed. In the case of Communist China, there have always been, and in the foreseeable future, it seems likely that there will continue to be, doubts concerning the honesty and accuracy of the collectors of raw data. It is known that Communist Party members and sympathizers with direct responsibility for maximizing the contribution of their economic or political units to the economic modernization of China have fabricated data favorable to the CCP in order either to get ahead in the Party or to keep their jobs. Apparently, competition among fabricators has sometimes had a snow-ball like effect; when the truth has come out, the Communists have been considerably embarrassed. One of the better publicized examples of such improprieties concerns a railroad train crew which apparently made safe runs totalling 62,500 miles without a major overhaul and with fuel consumption 25% below normal. It was later discovered that in fact 16 "responsibility accidents", an extraordinarily expensive secret "checkup" and secret refueling had taken place during this period. [1]

Perhaps more serious than deficiencies in character are deficiencies with respect to formal education among the raw data collectors. Most of the Chinese are unable to read or write their own language and this, coupled with the prevalence of varying customs in different localities with respect to the precise meaning of terms used in weighing, measuring, and counting, further coupled with the uneven progress the Communists have made in remedying these deficiencies, creates uncertainty as to the precise changes which have occurred in any one place and at any one point in time.

In 1930, for example, the unit of land measure known as the *mow* (alternate spelling: *mou*) varied in equivalency in 14 counties studied between 0.10583 acres and 0.19951 acres with an arithmetic mean of 0.16251 and a median value of 0.16083.[2] In 1935, in a more intensive study of the statistical data uniformity problem, the Nationalist Government of China found 23 different units of land measurement, 27 different units of weight, and 22 different units of length, many with similar if not identical names.[3] The same confusion existed in the 1930's and 1940's in the Communist-held areas of China. For example, in some places, the *picul*, a unit of weight officially was equivalent to 133.33 lbs., in other places, officially it was equivalent to 110.23 lbs., and in practice, often it was neither.[4]

As long as the bias or degree of statistical impropriety remained constant over time, differences in data could be used to measure the changes which had taken place. However, given the progress the Communists have made in eradicating illiteracy and standardizing weights, measures, and systems of counting, there is now and will continue to be for some time, unevenness in the extent to which this bias is present in the data.[5]

Related to the question of the uniformity of the data is the question of the definitions employed. The definitions formulated by the Communists are considerably broader than those customarily used and have led to a great deal of statistical inflation; e.g. the adding of a small repair shop to a factory is classified as new factory construction.[6] A second example: However low in quality and limited in usefulness, the output of tens of thousands of small, local (virtually home-made) furnaces is being added to and mixed statistically with the output of large modern iron and steel plants, thus inflating the output data of the latter.[7] Other major mis-definitions are cited below in connection with specific statistical problem areas.

Invocation of the doctrine of *caveat emptor* is also warranted with respect to the presentation techniques employed by the CCP. The Chinese have issued and widely publicized relative data pertaining to industrial, commercial, transportation and communication developments which are based on low absolute data. The absolute data are low simply because China's industry, transportation, and communication facilities, etc. are of relatively recent origin and have always been technologically primitive in character and undeveloped quantitatively compared to that of the West. The small increases in absolute terms which were measured against the small absolute bases naturally yielded large increases in relative terms and provided the grist described above for the Communist propaganda machine.[8]

Still another reason for caution, with respect to use and acceptance of statistical data issued by the CCP is the question of the quality of the objects and services being measured, weighed, or counted. Quantitative data being just that, it is impossible in the absence of valid tests or other direct comparisons of specific goods and services to equate Chinese goods with those of the West qualitatively. However, a number of complaints concerning China's output suggest that the import of the quantitative data issued is considerably less than one might expect. For example, a number of the large, modern factories designed by the Russians are unsuitable to the Chinese economy and have become little more than showplaces and foci of propaganda. One well-publicized motor car factory operated at one-tenth capacity in 1957 because of a prolonged shortage in China of the raw materials needed to manufacture the car.[9]

So much for general statistical matters.

2. Index Numbers.

In no other statistical technique do the Communists attain such high standards of performance as with production index numbers. The CCP uses binary comparisons based on Laspeyre's formula: L (index number) $= \frac{\Sigma\ q_1P_0}{\Sigma\ q_0P_0}$ with P_0 as usual, prices in the base period. For the years 1949 through 1952, P_0 is usually prices in 1949. For each of the years in the First Five Year Plan (1953-57) P_0 usually refers to prices in 1952.[10] Because the economic regimen changed radically during this period, beginning with production data for the year 1958, the first year of the Second Five Year Plan, production index numbers are to be based on 1957 prices.[11] Presumably, for the Third Plan, which will begin in 1963, P_0 will be 1962 prices. The Communists state that during the First Five Year Plan the prices of "some" agricultural products were increased while the prices of "most" industrial goods were reduced. Table 1 reflects this.

Table 1 indicates that *ceteris paribus* $\Sigma\ q_xP_{1952}$ would be slightly greater than $\Sigma\ q_xP_{1957}$ and that a total value

Table 1 [12]

Estimated Value of Industrial and Agricultural Production In Communist China in 1958.

(unit: million *yuan*)

	Estimated Value of 1958 Production				
	(a) Using 1952 Prices	Percent of Total	(b) Using 1957 Prices	Percent of Total	Percent Change of *yuan* values (1952 = 100)
Industrial Production	71,960	52.9%	64,370	48.3%	−10.5%
Agricultural Production	64,250	47.1%	68,830	51.7%	+ 7.1%
	136,210	100.0%	133,200	100.0%	Net: − 2.1%

of industrial and agricultural production based on 1952 prices would contain an upward bias, i.e., would be larger in monetary terms, than would be the case if 1957 prices were used. The conclusion seems warranted that the *raison d'etre* for the change of base is to eliminate the upward bias imparted to the data by the changed economic regimen.

In contrast to the production index numbers issued by the CCP, their price index numbers leave a great deal to be desired. Their indexes of wholesale prices for the years 1950 through 1955 are based on data gleaned from between 15 and 47 cities and generally vary in this respect from year to year. For 1950, the index is based on prices in 15 cities; in 1951, in 25 cities; the next year in 47 cities; in 1953 in 44 cities; in 1954 it was down to 42 cities; and by 1955, it was down to 37 cities.[13] The retail price index numbers also lack uniformity with respect to the size and location of the sample data. Sometimes the index numbers are based on sample data in 8 cities and other times on data in 12 cities.[14] In a predominantly agricultural nation composed of over 200,000 localities wherein transportation and communication facilities are still grossly inadequate in relation to the need for them, price index numbers computed in this fashion can hardly be considered as having more than very limited significance. The relatively limited data on retail prices vis-a-vis wholesale prices issued by the CCP raises a question concerning the controls exercised by the Communists over various sectors of the economy and their relation to the price index problem. Wholesale prices have been more easily and thoroughly controlled by the CCP than retail prices simply because of the smaller number and larger size of the wholesale firms relative to those at the retail level; and the therefore greater ease of controlling and ultimately socializing them. In 1955, for example, 82.2% of the total volume of wholesale trade was conducted by State-owned firms, whereas such firms in that year accounted for only 27.0% of the total volume of retail trade.[15] It is probable that retail prices have fluctuated to a far greater extent in the various regions of China than is suggested by the limited data issued by the CCP and that CCP statisticians have not done a more creditable

job in this area of statistics simply because it would embarrass the Party. Unfortunately, it will be some time before sufficient data are available either to validate or invalidate this hypothesis.

3. Population Data.

According to one demographer, during the last 200 years no less than 47 estimates have been made in China and abroad of the total population of China, with large differences among them.[16] In the decades immediately prior to 1954, the estimates ranged between 342 and 486 millions of persons, with the majority falling in the range of 440 to 486 million. In November 1954, the CCP released the results of a census taken on June 30, 1953 which showed the total population of mainland China including Tibet on that day as 583 million.[17] The CCP also announced that in a survey of one area containing 30 million persons, it was found that the birth rate was 37 per thousand while the death rate was 17 per thousand. thus indicating an annual rate of population increase of 2%. According to other data, in 23 (unspecified) counties in 7 (unspecified) provinces and 1 (unspecified) autonomous region, the population increased through natural causes by 4.1% between January 1953 and March 1954.[18] This represents an annual rate of increase of approximately 3.3%. Still other surveys have yielded estimated rates of increase of 2.2% to 3.0%.[19] All of these data have set off a rash of computations and predictions concerning the magnitude of China's population at various points in the future. China no doubt has a high birth rate, but it is doubtful that the death rate is as low as 17 per thousand or otherwise so low as to result in net annual rates of increase in excess of 2%. A national death rate of 17 per thousand is simply too low in relation to all of the data available on death rates in China in the 1930's and 1940's. Between 1917 and 1933, death rates were reported for 31 regions in China, and if the relatively more unreliable data on 14 regions are omitted, the death rates in the remaining 17 regions ranged between 13.0 per thousand among Christians in Peiping to 37.1 per thousand among all the people of Yenshan County in Hopeh Province.[20] Highly educated guesses based on these and other data placed the national death rate as being well over 30 per thousand during the two decades prior to the CCP attaining political supremacy in 1949.[21] It is possible of course that the sample data issued by the CCP are correct, but the radical changes in health, sanitation and other economically significant matters which such changes in the death rates suggest make it difficult to believe that they could have been accomplished among so many people over as large a land area as China in so short a time. This is an interpretation of the population data which of course rests more on a disinclination to believe the CCP-issued data than it does on the availability of other current and relevant contrary data. As such, as with the question of the retail price indexes, validation or invalidation of this view will apparently have to wait for some time, until political conditions are changed in China or more and better data otherwise become available.

4. National Accounts Data.

As with price index numbers and population data, at present one can do little more than define the areas of uncertainty with respect to the statistical techniques employed by the CCP and offer a first approximation to the validity thereof. The major national income accounts employed by the CCP and their meaning are described below.[22]

a. "National Income". This is somewhat similar to the concept of Net National Product as used by the U. S. Dept. of Commerce. It is roughly equivalent to Gross National Product less depreciation and is defined as, "new value created by laborers, and is composed of wages, profits, taxes, interest and insurance fees." It differs from NNP in that only those services which are immediately connected with the production process are included (e.g. freight transportation). Services which do not specifically and directly add to value are not.

b. "The Consumption Fund". This is defined as "the total of consumer goods used by the whole population individually and collectively, plus public expenditures for administration, national defense, etc." It is roughly equivalent to Consumption in both the Department of Commerce and Keynesian senses.

c. "Accumulation Funds". "National Income" less "the Consumption Fund" yields two "Accumulation Funds" which are used to increase "Social Wealth". These "accumulation funds" together roughly constitute net national investment in both the Department of Commerce and the Keynesian senses. The more important of the two is "productive" type investment: in machinery, factory buildings, railroads, etc. "Non-productive" investment consists of the building of homes, office buildings, etc. for private, collective, or social use.

In the United States, our national income data include such accounts as "corporate income taxes", "undistributed corporate profits" and others which reflect our capitalistic type of economic organization. In China, which is socialistically organized with respect to most branches and sectors of the economy, and communistically organized with respect to agriculture, the national income data have been organized so as to emphasize these major economic policies and their accompanying problems. The data carefully differentiate among the contributions to national income made by the "state-owned", "co-operative", "state-capitalist", "capitalist", and "individual" ownership sectors of the economy. They do likewise with respect to the various branches of the economy: agriculture, industry, commerce, the building industry, and transport, posts and telecommunications.

As non-capitalistically organized countries go, this is a fairly straight-forward or normal approach. However,

in the case of one major element in the data, there are a number of material matters to be taken into account. Taxes levied by Central Government are very much understated. The peasants, who constitute the overwhelming majority of the people of China, not only pay agricultural taxes explicitly labeled as such but also pay taxes labeled as other things. These include: a) compulsory sale to the State of agricultural "surpluses" at low fixed prices; b) peasant repurchases of a substantial part of these agricultural "surpluses" at higher prices; c) not so "voluntary" deposits by the peasants in State-controlled banks, which may be withdrawn only with difficulty and d) not so "voluntary purchases" of government bonds and "contributions" to various causes and "insurance funds".[23] While city dwellers did not pay as much in implicit or quasi-taxes as their country cousins, they too paid substantial taxes which were recorded as one "volunteer" activity or another. One group of researchers estimates that, in 1950 through 1952, the value of the implicit taxes paid by the peasants was approximately 150% of the value of the explicit taxes they paid.[24] This student of the subject is inclined to believe on the basis of the data available that this is true of the years 1953 through 1958 as well. However as with the matters noted above, validation or invalidation of this hypothesis is not possible at this time. One can only wait until more and better data are available.

III. Conclusion.

There are many gaps in the statistical data issued by the CCP and considerable unevenness in quality among such data as have been issued. Occasionally data are issued which meet generally accepted statistical standards but the bulk of them in a very broad sense does not. Many data appear to have been issued primarily as functions of some parts of the CCP propaganda machine rather than as objective data to be used objectively. Consequently, great caution is required in connection with their use and interpretation. It may be that the CCP will bring its statistics-collecting and statistics-issuing agencies up to par, but until such time as it is clearly established that this has been done, the doctrine of *caveat emptor* will continue to be most appropriately invoked with respect to its data.

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RANDOM BALANCE
or
ONCE UPON A TIME—*

Aloysius Joseph Polaneczky, The Franklin Institute

One upon a time, there was a Cook. And, this Cook was world renowned for his ability to create the most delectable fish chowder that ever excited the palates of the most exacting gourmets.

Now, this Cook not only had the ability to turn out the most delectable fish chowder ever tasted, but also had the most discriminating palate of all. Although everyone said his talent was unsurpassed, and the quality of his chowder was always at its peak, the Cook knew better. He knew that the quality of his chowder varied, just by tasting it himself, although no one else could tell the difference.

So, one day the Cook decided to find out just what did make quality vary so. Now he knew he was a good Cook, but he also knew his limitations. He knew that to answer his questions, he would have to run experiments. To do this properly, he would have to hire the services of a Statistician. So he did.

One bright and sunny spring day the Statistician arrived complete with retinue. His troops of loyal assistants followed neatly row on row. Each row was the same width, and each column was the same length. Each assistant carried many tables and treatises, looking for all the world as if the burden were unbearable. The Statistician himself headed his troops, his proud head held erect, and his grey locks waving in the gentle morning breeze. The furrows upon his brow, and the distant look in his eye, bespoke of much wisdom and authority.

The awed Cook humbly approached (realizing that he was in the presence of one much wiser than himself) and bade the Statistician Good Morning. However, the Cook was also endowed with curiosity, which overcame his respect for authority. He asked the Statistician if his troops ever became weary. The Statistician patiently explained that, although the load carried by each of his assistants was indeed heavy, as long as the weights were balanced, nothing need be feared. The Cook inquired as to what would happen if one of the loyal assistants might just happen to drop a treatise. To this the Statistician replied that the unbalance would cause him to topple against the next man. This would be transmitted all along the line, and the entire troop would tumble into the dust. He added that if this happened, his powers would disappear; therefore balance must be maintained at all costs. Again the Cook marveled at the wisdom of the Statistician.

The Statistician reminded the Cook that time was valuable, and the matters at hand should be attended to without delay. The Cook hastily agreed, realizing that the time of such an important and wise personage should, indeed, not be wasted. He explained to the Statistician that he wanted to make a better quality chowder, such as has not been seen since the beginning of time. The Cook told the Statistician that the quantity of fish was suspect and he would like to investigate this. No sooner had the Cook pronounced the words, than the Wise Statistician had the proper design in his hands. It was a one way analysis of variance, replicated an equal number of times at each level of fish, with many levels of fish. Also included was a table of numbers headed "Orthogonal Polynomials." The Cook was more awe-struck than ever, as he marveled at the wondrous Statistician.

But, the Cook, being a simple-minded creature, inquired as to the propriety of the design. After all, he allowed as to how, if he gradually increased the quantity of fish as shown in the design, he might find himself in trouble. He allowed as to how long it would take him to run the experiments. After all, it was spring. And his assistants, being young and romantic, do not do their best work at that time of the year, but, gradually improve as the season wore on. And the carrots, they were worst during the spring, too. Anyone knew that the onions were at their best in June, not April. And what of his kettles? Were they not of different sizes and shapes? And were his stoves not of different vintages? He certainly did not want to do all of the experiments, and end up with the same kettle of fish.

The Statistician patiently explained that randomization would take care of all that. All that need be done was to run the experiments in random order and the efforts would not be in vain. The Cook marveled at this impressive word, and the wisdom of the Statistician, and humbly agreed to proceed according to plan.

One year later, the Statistician returned, complete with retinue, marching in perfect cadence, to assay the fruits of the Cook's experimental labors. All had been carried out according to plan. He explained to the Cook that now the effect of the fish could be determined, complete with valid estimates of confidence limits. But, alas, when the calculations were completed, the confidence limits were wider than the humble Cook's reputation. The Cook sadly listened while the Statistician wisely commented on the large variability of the experiment.

The Cook timidly inquired as to the possibility of also testing the effect of the carrots. After all, everyone knew

* Editor's note: There is currently some debate on the validity of the "random balance" technique in the field of experimental design. We join the author of this article in inviting further comment on the method.

that the quality of the carrots was not constant. The Statistician explained that this could be done with any of the ingredients subject to control. The Cook explained that there were 4 qualities of carrots, 5 qualities of onions, 4 seasons of the year, 5 different assistants, 3 kettles, 2 stoves, right and left hands were used to stir, and 5 possible quantities of fish, not to mention the many levels of sage, thyme, curry and the many other exotic herbs used. The Statistician promptly produced from the folds of his cloak a completely balanced design calling for 42,738,257 experiments.

But, the Cook protested that such a number of kettles of fish he could not produce in a lifetime; and even if he could, think of how many bad kettles of fish he would be forced to produce. Might he not perhaps be able to get by with just a small number of kettles of fish?

The Statistician patiently explained that under that type of reasoning the number of kettles of fish would be exceeded by the number of ingredients, at least. This was an unsolvable situation. The Cook asked if he might at least test the effect of carrots. The Statistician explained (patiently, of course) that this was entirely practical so long as he randomized over everything else. This would give him valid confidence limits. And might he do the same for onions also? Of course, as long as he randomized. And his assistants, too? Likewise. The Cook marveled at the Statistician's wisdom (meanwhile noting that the Statistician had unknowingly let a table of Random Numbers slip from the folds of his long cloak). The Statistician took his leave, and promised the Cook a return courtesy visit if he ever chanced by.

After the Statistician (and his retinue) disappeared from view, the Cook reverently picked up the table of Random Numbers. He purposely had not mentioned the fallen table, thinking perhaps that if he at least could touch it occasionally, some of the wisdom of the sage Statistician would be magically assimilated. But, perhaps this was hoping too much, for after all he was just a humble cook.

Every morning, before he began his labors, the Cook would reverently fondle the table, but as he sadly expected, nothing happened. Then a dangerous change took place. Familiarity began to breed contempt. The Cook no longer fondled the table, but became bold enough to read the table and the accompanying instructions. He suddenly realized that this was the key to randomization. He then designed an experiment to test the effect of carrots alone, randomizing with respect to all of the other variables. After all, this was entirely proper (the wise Statistician said so). But the Cook also noticed that if he looked at the onions alone in the same design, everything else was random. The same was true of the kettles, thyme and even the mode of stirring. This then met the conditions that the wise Statistician insisted upon for each of the ingredients and methods when investigated alone. But did he not say that I could not test for all of these variables in a small experiment? Do I not have too few kettles of fish? How can black be white at the same time? But the Cook realized that he was but a humble man and should not question wisdom. (So he ran the experiments anyway.)

One year later the Statistician returned (complete with retinue) to pay a courtesy visit to the humble Cook. The Cook showed the Statistician the results of his labors in the field of experimentation, stating that the effects of carrots had been studied, and the order of experiments was random. The Statistician calculated the effect of carrots, complete with confidence limits. The Cook then showed the Statistician the same set of data explaining that the effects of onions had been studied, and the order of experiments was random. He neglected to explain that these were really the same set of data (being awed by the presence of the Statistician). The Statistician also failed to notice this, being concerned with thoughts of means, standard deviations and Marilyn Monroe (he had human qualities which he kept well hidden). He calculated the effects complete with confidence limits. The same process was repeated many times with the same set of data.

When the Statistician's labors were completed he concluded that fish, thyme and a variable coded WONTCHBITFBTPD were truly significant. He also inquired into the meaning of the last coded variable. The Cook replied that it stood for "Whether or not the cat had been in the fish barrel that particular day." The Statistician displayed a human emotion by blinking, and asked in which direction the slope lay. But the humble Cook smiled and said nothing.

The Cook eagerly clutched the conclusions in his hand and invited the Statistician (and his retinue) to stay for lunch. Soon after disappearing into the kitchen, the Cook began to brew a kettle of fish. As the odors began to waft over the heads of the retinue, a strange thing happened. One member became so entranced by the promise of a most delectable dish that he lost the grip on his designs. As he dropped them to the ground a chain reaction set in, and soon the entire retinue crumpled into the dust. Needless to say, the Statistician enjoyed the chowder tremendously.

The Cook's reputation spread even wider than before, and people came from far and wide to enjoy the most delicious fish chowder. There were two very puzzling circumstances, however, that aroused the curiosity of his clientele. One was the presence of a starry-eyed, sage-looking, white-haired gentleman who did nothing but sit around all day eating chowder; the other was the presence of a multitude of lazy, well-fed cats.

For several years now people have been wondering if the fairy tale is really true, or whether it is a bit of folklore to be used as a bedtime story for children. Wouldn't it be wonderful if grown-ups would put their thoughts into print?

THE ROYAL STATISTICAL SOCIETY

SPEECH DELIVERED AT THE 125TH ANNIVERSARY DINNER

by the

Right Hon. Harold Macmillan, *M.P.*

Editor's Note: Reprinted here is the advance text of the Prime Minister's remarks, as released to the press.

The Statistical Society of London was founded on March 15, 1834, with the Marquis of Lansdowne in the Chair. The Society began with 313 "original members". The Royal Charter was granted in 1887 following its fiftieth anniversary. The number of fellows reached 1000 in 1924, 2000 in 1949, and promises to reach 3000 in the current year.

The Anniversary Dinner was held on March 17, 1959. The Prime Minister proposed the toast to the Royal Statistical Society and the President of the Society, Sir Harry Campion, responded. Other speakers at the dinner were Lord Piercy and Prof. A. Bradford Hill (Past Presidents of the Society), Sir Harold Gillett (Lord Mayor of London) and Sir Maurice Bowra (President of the British Academy).

Dr. Churchill Eisenhart, Vice-President of the ASA, represented the Association at the Anniversary Dinner. The Prime Minister's press release and the banquet program (from which this note was compiled) were transmitted to THE AMERICAN STATISTICIAN by Dr. Eisenhart.

A full account of the Dinner, with the report of the speeches, is to be published in the *Journal of the Royal Statistical Society*, Series A (General), Part III (1959).

It has been my own deep and lifelong interest in economic and social affairs which has made me very aware of the activities of your Society. Many of the subjects you discuss bear more directly on the lives of the ordinary citizen than those with which most learned societies are concerned. The journals of your Society provide exhaustive and penetrating studies into the pattern of our economic and social development during the last 125 years. They shed light on many of the problems encountered in the period. But you have always held fast to the principles of scientific enquiry which inspired the founders of this Society. So we find at your Headquarters a forum where subjects of day to day interest are discussed in the spirit of a learned society.

Budget Day will soon be with us. And this is the time of year when the output of statistics reaches its peak with financial statements, economic surveys, National Income White Papers, and all the year-end reports on production, trade, prices and finance. Indeed, without statistics there could be little useful public activity of any kind. This may sound to some like a good reason for stopping all statistics. But to do so would not alas bring such activity to an end. It would merely cripple almost every form of social action. It was the invention of writing that rendered the existence of great States possible by enabling the central Government to make general and permanent laws and to keep in communication with outlying districts. It was the invention of arithmetic, and in modern times of statistics, which has made possible the elaborate organisation of society in which we live.

125 years ago here in London this was recognised. The importance of the need of statistics was realised. Many eminent men took part in starting the collection of statistics and in this country of spontaneous, unofficial initiative, they came together and founded a Statistical Society. It has been said that if Englishmen are cast away on an uninhabited island, the first thing they would do would be to constitute a committee to run the island with a chairman, treasurer and honorary secretary. This is the first thing your own Society did. And they then authorised the Secretaries of the House Committee "to purchase a carpet, a rug, floor cloth, candlesticks, snuffers and the necessary tea apparatus". This suggests that they had some regard for creature comforts and were not solely concerned with man as a statistical animal.

Of course it is not the subject under study but the way in which the study is pursued which entitles investigators to be called "men of science". No doubt it is partly vanity which leads us now to suppose that the economic and social problems of our day are more complex than those of our ancestors. Certainly each generation is apt at times to scoff at the inadequate methods used by its predecessors to tackle their problems. What your founders did was to introduce the methods of science into a field previously overgrown with weeds of prejudice and to introduce a scientific, a statistical approach to the problems of the day. They realised—as their successors have not always done—that economic and social questions could not be solved by the use of rhetoric, and perhaps this feeling accounts for their rather exaggerated dislike for what they called "opinion". Our business, they said, is not with figures of speech but with figures of arithmetic. They put right in the forefront of their activities the necessity to collect facts about the "Conditions and Prospects of Society".

I am delighted to see some of the ladies who are Fellows of the Society are present here this evening. They have a distinguished lineage in this Society, for Florence Nightingale was one of its first members. I understand that on the occasion of the 50th Anniversary of the Society 75 years ago, at a meeting in which the International Statistical Institute was formed, she offered overseas delegates "a room, breakfast, dinner and a place to work at any time—a better dinner with notice".

Since the early years of your Society, the progress made in the collection of facts about economic and social conditions has, as everyone acknowledges, been very great. The use made of statistics and of statistical methods, both in business and in Government, is on a

scale your predecessors could not have imagined. To have any hope of carrying out their policies, the Government of the day must have knowledge of the facts as they are, together with such information as will help it to deduce future trends. It is equally essential for the Opposition to have these facts at their command, in order to draw precisely opposite deduction. But, seriously, if the Government does not have this information it would, as your past President Lord Woolton said in his own Presidential Address to the Society some years ago, "be like asking a doctor to be responsible for getting a patient back to health but denying him the right to take his temperature, check the pulse, test the condition of his heart, or to ask questions about his past health". I have myself ventured to urge the need to get these statistics quickly as well as accurately—so that we can keep pace with changes in economic conditions—so that, as I put it, we do not always have to be looking up our trains in last year's Bradshaw. Of course, statisticians are faced with difficult decisions in determining how much detail is really necessary for each exercise. But it has always been my belief that statistics must be available quickly if they are to be of real use in guiding those concerned with policy questions. Hence the importance of "sampling" and the "spot check": a sample is an instrument of policy, when the whole record may merely be a piece of economic history. In recent years, there has been a marked widening of public interest in statistics of all kinds. But along with this increase in public recognition of the subject, there has been, among its practitioners, a considerable widening in the range of applications of statistical techniques. Originally, the first concern of your Society was with economic and social statistics. Now, statistical methods are being used in the physical sciences, in technology, in agriculture, in medicine and in the newer branches of sociology. Every year sees some new development where statistical methods can be usefully employed. The methods you use have themselves become more exact. Your Society has done well so far in avoiding the perils of extreme specialisation which may occur in scientific societies. And it has tried to ensure that methods and practices employed successfully in one field of enquiry are made known to statisticians working on other topics.

CANADIAN STATISTICAL ACTIVITIES— CONTINUED FROM PAGE 12

the current Labour Force Survey was interviewed. A previous survey of this type was conducted in 1956 and the results were published in *Incomes, Liquid Assets and Indebtedness of Non-Farm Families in Canada, 1955.* These surveys have been taken by the Dominion Bureau of Statistics to obtain detailed income information by broad regions. The results of the latest of these is being published in June of this year in *Distribution of Non-Farm Incomes in Canada by Size 1957.* A proposal to ask income questions of a large sample of non-farm households in the 1961 Census in order to obtain detailed regional distribution of incomes by size is currently under examination.

Index of Industrial Production

The Dominion Bureau of Statistics Index of Industrial Production has been revised to a 1949 base and the revised index is published in *Revised Index of Industrial Production, 1935-1957.* The new index (1949 = 100) indicates a sharper growth in physical production since 1949 than did the old index (1935-39 = 100). This downward bias in the old index, averaging about one per cent per year compounded, was largely the result of using unadjusted man-hours to represent output for a large proportion (43 per cent) of manufacturing industries. Prior to 1947 the two indexes show roughly parallel movements. The monthly index is published currently in the *Canadian Statistical Review.*

—J. A. Sawyer,
Chief, Research Projects Section
Dominion Bureau of Statistics

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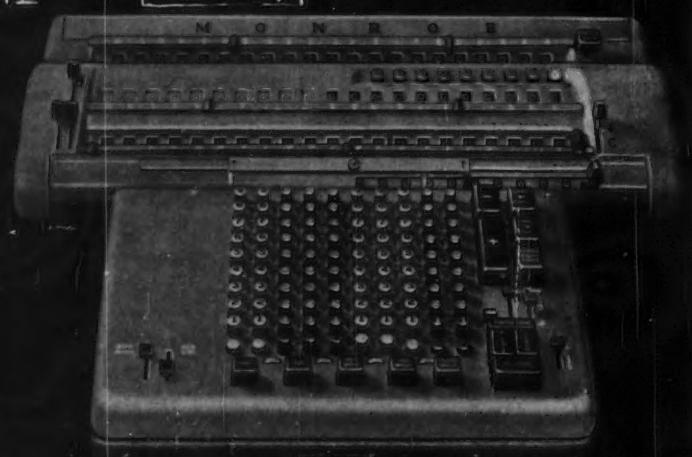
$N=6$

$\Sigma x = 456 \quad \Sigma y = 590$

$\Sigma x^2 = 35308 \quad \Sigma xy = 43401$

$$m = \frac{N\Sigma xy - \Sigma x \Sigma y}{N\Sigma x^2 - (\Sigma x)^2} = \frac{6(43401) - (456)(590)}{6(35308) - (456)^2}$$

$$m = \frac{-8634}{3912} = \boxed{-2.207}$$



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QUESTIONS AND ANSWERS

Edited by ERNEST RUBIN
U. S. Department of Commerce and American University

Needed—A Data Plotting Machine

Graphs and graphic methods have played an important role in the development of mathematics and statistics. According to one authority on the history of science, the earliest-known extant graph dates back to the 11th century A.D.[1] Presumably graphs antedate this period. The remarkable algebraization of geometry that culminated in the work of Descartes in the first half of the 17th century is, of course, the principal basis for the graphs employed in statistical work.

The idea of graphing has been extended in various important ways. Of great value are the mechanical devices that permit graphing of the observations as they occur. In the natural sciences this procedure is commonplace. Consider such well known graphing devices as the cardiograph, the encephalograph and the seismograph. The cardiogram is the wave picture obtained of a varying electrical current that is generated by the continuing action of the heart. The encephalograph traces the wave phenomena produced by the brain. Both the heart and brain graphs possess characteristic forms and are of valuable assistance in medical diagnosis. It would be interesting to obtain, if mechanically possible, both graphs simultaneously. To depart from the medical field, consider the seismograph which registers the shocks and undulatory motions of earthquakes, enabling a distant observer to obtain the time and estimate the approximate location of such disturbances.

The discussant has addressed his remarks to a further aspect or application of graphing. When the observations are numbers, it is occasionally desirable to obtain immediate graphs of these data singly and in combinations. Undoubtedly certain machines are already in existence or are on the boards that attempt to accomplish these operations. I wish to thank Dr. Robert G. Hoffman of the University of Florida for his interesting presentation of this subject.

* * * * * * *

I don't think most of us were in the statistical business for very long before we were confronted with a problem something like this: A "research worker" [2] comes to us with his hands filled with paper. He dumps this pile of papers in front of us and says, "I've been doing a little study on such-and-such and I want to know what is significant." And so round one begins—finding out what he has done and what he hopes to learn from an analysis of his data. We are then ready for round two, which I feel is one of the most important phases of the analysis: graphing as much of the data as is possible to see what it looks like. Failure to do this can result in all kinds of horrible things. Here is one example which I saw not long ago AFTER the material was published.

[1] A. C. Crombie, *Medieval and Early Modern Science*, Vol. II, Science in the Later Middle Ages and Early Modern Times: XIII-XVII Centuries, (Revised Second Edition, Doubleday Anchor Books, N. Y., 1959), Plate II following page 180.

[2] Definition of a research worker: A person with a problem, usually involving some numbers, who at least want to talk to you.

Discussion by Robert G. Hoffman

Two groups were being studied which we'll just call groups A and B. A t test had been done and the null hypothesis accepted P=0.10. When asked to review the material, I obtained the original data and made a small chart of the following form:

O Group A } Each symbol represents
X Group B } a subject.

O	XX	
OOOO	XXXX	
OOOOO	XXXXX	O

Scale of measurement

The "outlier" of group A resulted in an acceptance of the null hypothesis. When this outlier was omitted P=0.002, on the null hypothesis. The outlier was rejected both on statistical as well as experimental grounds. The literature now contains a learned discussion as to why the two groups turned out to be the same.

I have also seen in statistical practice all of the distributions described in textbooks plus a few I had never heard of before. The central limit theorem is cold comfort for some of these, and for some, I have yet to find an appropriate transformation. Graphs of the data are extremely helpful in this aspect of an analysis. Their most important use though, I think, is in providing pictures of how the observations of real phenomena are behaving. Is factor A related to factor B and if so, how is it related? What happens when we also drag in factor C? Much fruitless clerical time can be spent in calculating without having some idea of how the observations are behaving. So at least let's accept the hypothesis that a good data plotting machine would be of value. What would a good one be like? Let's stay out of the "science fiction" class of machines and talk about those which might be built today.

First, let's assume that we have, or can easily put our data on punch cards or tape, so our input problem is no problem. Also, for the sake of illustration, let's assume we have 500 sets of observations, each observation involving 5 factors. We want to see the distributions of each

of the factors. We set our cards or tape in the machine, telling it where the first factor is and press a 'program button' which says frequency distribution. We now press the 'start button' and in about 30 seconds, a picture of the distribution appears on a television type of screen. We say to ourselves, "Aha, we want to keep track of this one," so we punch a 'copy' button. The machine burps gently and out pops a copy. Next we want a scattergram of factor A vs. B and go through a similar set of steps. So it goes. If we happen to be busy and don't want to sit and watch the screen, we set the machine for the entire graphic program and come back later to pick up and study the pile of charts. Watching the data unfold, so to speak, can be much fun.

It is all too easy to visualize a machine that can perform so many functions that we are soon considering machines similar in capacity to the large electronic computers. This, I am afraid, would defeat our purpose. It would just cost too much money. Since the machine is performing clerical functions, its cost should be in terms of a good clerk's salary for two or three years, say around $10,000. In other words, build as many features into the machine as is possible without making it too expensive.

I imagine that people in managerial positions could put such a machine to good use. For sales, inventories, sources of materials, productivity, etc.—periodically prepared charts of key areas should be of some value.

There are, of course, existing machines that are useful for some of our graphing problems. Not considering the computers, the old pocket counting punch card sorter will count the punches for us in a single column, but this is very slow compared with our "TV" job.

Surely some of our members are associated with companies that could build a good electronic data plotting machine. Will someone please build some? I need one.

COOPERATIVE FIELD AND CLINICAL TRIALS—CONTINUED FROM PAGE 17

all definitions, procedures, and objectives. He also develops a greater appreciation for the pilot or preliminary trial to help standardize measurements, techniques and other variables among various laboratories and observers. The problems involving the design of study, including the number of patients from different centers and the randomization schemes for the allocation of patients to therapy, are sometimes different from the ones usually encountered in a single institution study.

The kinds of studies in which cooperative efforts are likely to be conducted are often in a field where the investigators are searching for clues for new drugs. When this is so, the statistician must free himself and the consumers of his services from conventional notions about two-sided tests and 5% and 1% levels of significance. In these exploratory trials, errors of the first and second kind should be more flexible than they are in the straightforward definitive trial. Also, the criteria of evaluation of drug performance should be more open-ended to allow leeway in analysis in the hope of producing suggestions for new compounds. A drug which does not produce a complete or final cure may have a desirable effect upon some component of recovery and such information is valuable to the drug producer.

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WILLIAM FIELDING OGBURN, 1886-1959

The life of William F. Ogburn, one of America's foremost social statisticians, widely regarded as the dean of American sociologists, came to an end in Memorial Hospital, Tallahassee, Florida on April 27, 1959. The immediate cause of his unforeseen death was a ruptured esophagus, following an operation for the stomach ulcers by which for some time he had been troubled. An ardent tennis player, he had been on the court only two days before. He is survived by his wife Rubyn, his son Fielding, his daugher-in-law and two grandchildren, all residents of the Washington, D. C. area.

Ogburn was born in Butler, Georgia, on June 29, 1886, thus being two months short of 73 years of age at the time of his death. His life was devoted to teaching and research in the social sciences, usually with a definite strain toward public issues and recognized social problems. His teaching career included positions at Princeton, Reed College, the University of Washington, Columbia and the University of Chicago, from the last of which he retired to emeritus status in 1951. Formal retirement gave him freedom for travel and continued teaching, both abroad and at a regular winter-season assignment at the University of Florida, where his last days were spent. At various times he was Visiting Professor at Nuffield College, Oxford, and at several of India's universities. After World War I he spent some months in France studying inflationary trends in its monetary system.

Ogburn's teaching and research positions were interspersed with and supplemented by an extraordinary number of public activities, including assignments for the Federal Bureaus of Census and Labor Statistics, National War Labor Board, N.R.A., Resettlement Administration, National Resources Committee, and Bureau of the Budget. The list of his services to American professional organizations in the social sciences would almost require a roster of these. Among them may be mentioned his presidencies of the American Statistical Association (1931), American Sociological Society (1929), the Social Science Research Council (1937-39), and his chairmanship of the Census Advisory Committee (1940-53.) From 1920-26 he was editor of the JOURNAL OF THE AMERICAN STATISTICAL ASSOCIATION, of which he was a Fellow.

The most widely noted of his public services followed his appointment by Herbert Hoover to membership in the President's Research Committee on Social Trends (1930-33). The conception of the undertaking was Ogburn's own. and while the Committee was headed, as Chairman, by the late Wesley C. Mitchell, Ogburn served as Director of Research. This, the most pretentious enterprise of its kind yet undertaken, assembled under Ogburn's direction a large and distinguished staff of investigators to assist in preparing a two volume report and a dozen-odd supplementary monographs. This "landmark" of a quarter-century ago has served as the prototype for a proposal advanced by President Eisenhower in his recent State of the Union message to launch an analogous current inquiry. As a surviving member of the original Hoover committee Ogburn participated actively in discussions which preceded the recent Eisenhower proposal.

Ogburn's professional interests were influenced in somewhat different directions by Franklin H. Giddings, under whom he took his doctorate at Columbia, and by Franz Boas at the same university. His own scientific work was never esoteric and shows pronounced leaning toward Boas and his school of anthropological research. This led in turn to an interest in psychiatry, psychoanalysis and motivational research. He was among the earliest of American social scientists to employ quantitative methods in the fields of social psychology and political behavior; being unaware, or at least unconcerned, whether his studies should be classed with sociology, social psychology, cultural anthropology, or even the science of politics. His publications extended over a wide range of interests such as marriage, the family, the statistical characteristics of cities, child labor legislation, the impacts of machines and aviation upon society, and indexes of the cost of living. Among these many publications, students of sociology are likely to regard his most lasting contribution as *Social Change* (1922) wherein he developed the concept or hypothesis of "cultural lag". This concept has gained a secure place in contemporary social theory.

Ogburn's inquisitive, speculative and wide-ranging mind was housed in a majestic physical frame. Almost painfully slow in speech at the beginning of a conversation or lecture, he soon rose to his subject with an outpouring warmth and friendliness toward his listeners. He will be affectionately remembered for these personal traits no less than for his leadership in social science research as long as any of his multitudes of students and friends themselves survive.

Stuart A. Rice

NEWS ABOUT MEMBERS

David R. Barr, 1st Lt. USAF, has been assigned to the United States Air Force Academy, Colorado for duty as an instructor in mathematics.

Sidney Binder, Director of the Coding, Editing and Tabulating Department of National Analysts, Philadelphia, who has been in Korea with the Surveys & Research Corporation staff as a Data Processing Adviser, is returning to the United States.

Hugh P. Brinton is transferring from the Office of Education to the Public Health Service as Statistician with the Occupational Health Field Headquarters, Cincinnati, Ohio.

Gertrude M. Cox recently received the 1959 Oliver Max Gardner Award, which is given each year "To that member of the faculty of the Consolidated University of North Carolina, who, during the current scholastic year, has made the greatest contribution to the welfare of the human race . . ."

Reavis Cox, Professor of Marketing, Wharton School, University of Pennsylvania, will assume the Presidency of the American Marketing Association on July 1, 1959.

R. B. Crean is now Vice President-Treasurer of the Gustin-Bacon Manufacturing Company, Kansas City, Missouri.

Jesse M. Cutts, Adviser on Industry Relations, Division of Prices and Cost of Living, Bureau of Labor Statistics, has retired after approximately 41 years of work with the wholesale price index and other industrial price indexes of the Bureau.

Robert E. Dormont is now working for Rocketdyne, Canoga Park, California, a division of North American Aviation, in the capacity of Senior Statistician.

Libert Ehrman, Vice-President of Surveys & Research Corporation and Assistant Manager of its Korean project, is returning from a supervisory consultation with the Corporation's staff in Korea.

Raymond Franzen, formerly Director of Statistical Control of the Hawaiian Pineapple Company in Honolulu, has returned to New York City to resume his consultation practice in the interest of HAPCO and other clients.

Meredith B. Givens has accepted overseas appointment in Karachi with Harvard University's Advisory Group which is furnishing technical assistance with the National Planning Commission in Pakistan in conjunction with the Overseas Development Program of the Ford Foundation. Dr. Givens has retired from his previous position with the State of New York.

Harold Goldstein has been designated Acting Chief of the Division of Manpower and Employment Statistics, Bureau of Labor Statistics.

Albert M. Hermie of the Statistical and Historical Research Branch, Agricultural Economics Division, Agricultural Marketing Service, has transferred to the Federal Aviation Agency.

H. G. Higley has been appointed Director of a statistical study of herniated discs which has been authorized by the National Chiropractic Association. The purpose of the study is to determine the circumstances under which the so-called herniated discs do occur and find out if there is any correlation with occupations, age groups, geographical locations, etc.

Lyle R. Johnson has joined the research staff of International Business Machines Corporation as a Staff Engineer at the research center in Yorktown, New York. He is presently engaged in research on principles of computer organization.

Joseph W. Kappel, who has been Assistant Director of the Educational Statistics Branch, Office of Education, will serve as Assistant to the Program Analysis Officer, Department of Health, Education and Welfare.

Harry W. Kelley graduated from Marquette University, Milwaukee on February 5, 1959 and has started as a Chemist in the Quality Control Department of the Hastings Chemical Division of the Minnesota Mining and Manufacturing Company, St. Paul.

Charles B. Lawrence, Jr., Program Analysis Officer in the Office of the Secretary, Department of Health, Education and Welfare, is on an 18-month leave of absence to serve in Korea as Census Adviser on the overseas staff of Surveys and Research Corporation of Washington, D. C., which is advising the Korean government in the development and implementation of an improved statistical program under contract with the International Cooperation Administration.

Howard S. Levin has left Ebasco Services and joined the Management Services Department of Arthur Young & Company where he will head computer application and management research activities on a national level.

Kenneth A. Middleton has been appointed Vice President for Market Expansion Programs with Alderson Associates, a Philadelphia marketing and management counseling firm.

Robert J. Myers has resigned as Chief Statistician of the International Labor Office at Geneva and has been appointed Deputy Commissioner of Labor Statistics. In earlier positions, he had served as the Assistant Commissioner for Program Planning of the Bureau of Labor Statistics and as Economist for the United States Foreign Aid Programs in France.

K. R. Nair, Chief Research Officer, Statistical Branch, Forest Research Institute, Dehra Dun, India has been designated Chairman, Advisory Group of Forest Statisticians, which was established in the International Union of Forest Research Organizations in March 1959.

William K. Robinson has taken the position of Vice President and Actuary with the First National Life Insurance Company of Phoenix, Arizona.

Paul L. Roney, formerly in the Division of Special Health Services, Public Health Service, has been appointed Supervisory Survey Statistician in the Decennial Operations Division, Bureau of the Census.

William H. Rowan has left the Metal and Thermit Corporation where he was employed as a Senior Research Chemist, to join the Convair Division, General Dynamics Corporation as a Mathematician in Operations Research.

Aaron S. Sabghir, formerly Deputy Director, Construction Industry Division, Business and Defense Services Administration, has joined the office of the Educational Statistics Branch, Office of Education, as Chief Statistician. He will be responsible for developing sampling programs and will serve as adviser on the application of statistical techniques to problems of data collection and analysis.

Jacob S. Siegel, a staff member of the Bureau of the Census, recently completed a 6-week assignment with the U. S. Operations Missions (International Cooperation Administration) in Havana, Cuba as demographic consultant to the new government of Cuba. During this period, he delivered a series of lectures on demographic statistics at the Statistical Training Center of the Ministry of Economy.

Tynan Smith has been designated a Senior Economist in the Consumer Credit and Finances Section, Division of Research and Statistics, Board of Governors of the Federal Reserve System.

Herbert Solomon has been appointed Professor of Statistics and Executive Head of the Statistics Department at Stanford University beginning September, 1959.

Irwin Steele, formerly Administrative Statistician in charge of Location and Potential Projects at the Rayco Manufacturing Company, is now Assistant to the Director of Area Research, Federated Department Stores, Cincinnati.

Luther W. Stringham, who has been Assistant to the Program Analysis Officer in the Office of the Secretary, Department of Health, Education and Welfare, will be Acting Program Analysis Officer during the absence of Charles B. Lawrence.

Alan E. Treloar has joined the National Institutes of Health as Chief of a new Statistics and Analysis Branch within the Division of Research Grants. Major tasks of the new branch involve evaluation of the research and training grants programs, and development of information storage and retrieval.

William J. Watkins has recently joined the staff of Marketing Research Department, Data Processing Division, International Business Machines Corporation, White Plains, New York. He was formerly with Armstrong Cork Company, Lancaster, Pennsylvania.

Murray L. Weidenbaum has been appointed Supervisor of the Economics Unit in the Headquarters Offices of the Boeing Airplane Company.

Murray Wernick has been appointed Senior Economist in the National Income, Labor Force, and Trade Section of the Division of Research and Statistics of the Board of Governors of the Federal Reserve System.

Aryness Joy Wickens has been appointed to the newly-established position of Economic Adviser to the Secretary of Labor, to advise the Secretary on economic developments and their effect on labor and programs of the Federal Government. Mrs. Wickens, who has been with the Department of Labor since 1938, has most recently been Deputy Assistant Secretary of Employment and Manpower.

R. R. Wiseman has been appointed Head of the Quality Control Department of the Carborundum Company of Latrobe, Pennsylvania.

Seymour Wolfbein, formerly Chief of the Division of Manpower and Employment Statistics, has been designated Deputy Assistant Secretary for Manpower in the Department of Labor.

Ramsay Wood has been designated Senior Economist in the Capital Markets Section of the Division of Research and Statistics of the Board of Governors of the Federal Reserve System.

Dudley E. Young of the Economic Operations Division, Bureau of the Census, has been reassigned as a Supervisory Survey Statistician in the Economic Operations Office in Jeffersonville, Indiana.

Selwyn D. Collins, Chief of the Morbidity and Health Statistics Branch of the Public Health Service's Division of Public Health Methods, died on March 27 in Boston, where he had gone for treatment. Dr. Collins, who was born in Missouri, graduated from the University of Missouri in 1914 and received the Ph.D. degree from Wisconsin in 1927. He worked with the Bureau of Labor Statistics for several years before joining the U. S. Public Health Service in 1920. Dr. Collins played a leading role in the first national health survey in 1935-36, and was also active in the field of international health statistics. In 1952 he received the Superior Service Award of the Federal Security Agency (now the Department of Health, Education and Welfare) for development and use of statistics to gauge public health, "that parallel the importance of the clinical thermometer, the stethoscope, the electrocardiograph, and similar diagnostic tools used to determine the health of an individual." Dr. Collins was the author of numerous articles and publications on health statistics. He was a Fellow of the American Statistical Association and of the American Public Health Association.

CHAPTER NOTES

Central Iowa

A joint meeting was held with the Central Iowa Industrial Engineers at the Armstrong Rubber Manufacturing Company in Des Moines on December 10th. Following dinner in the Armstrong cafeteria there was a tour of the Armstrong plant. The speaker for the evening was Prof. H. O. Hartley of Iowa State College; his topic, "Applications of Linear Programming."

A dinner meeting in Ankeny on February 11th featured a talk by IBM Applied Science Representative C. M. Daniel who discussed games based on computer simulation of the economy under the title, "Playing a Management Game."

At the annual meeting held on May 5th in the Iowa State College Memorial Union in Ames, the Department of Industrial Administration co-sponsored an address by Prof. H. V. Roberts of the University of Chicago on "Expert Misuses of Statistics."

Officers elected at the annual meeting were:

President—ROBERT J. BUEHLER, Statistical Laboratory, Iowa State College
Vice-President—SIDNEY ADDELMAN, Statistical Laboratory, Iowa State College
Secretary-Treasurer—HARVEY N. ALBOND, Des Moines City Plan and Zoning Commission

Central New Jersey

The April 14th meeting held at Princeton University heard Dr. John Hemphill, Educational Testing Service, speak on "Dimensions of Executive Positions." Dr. Hemphill's talk was based on an analysis of a questionnaire about their work answered by 100 executives in a number of large industrial organizations.

The speaker at the May 4th meeting was Professor Frank J. Anscombe of Princeton University. Professor Anscombe discussed "Rejection of Outliers."

The subject of the May 18th meeting was "Current State Government Statistical Programs: New Processes and Federal-State Cooperative Programs in Five Different State Agencies."

Speakers were Walter Chartier, Chief of the Bureau of Research and Statistics, Division of Employee Security, N. J. Department of Labor and Industry; Mrs. Gladys W. Ellsworth, Chief, Research and Statistics, N. J. Department of Conservation and Economic Development; Douglas H. MacNeil, Chief, Bureau of Social Research, N. J. Department of Institutions and Agencies; and David S. Winans, Chief of the Bureau of Research and Statistics, N. J. Department of Education.

The following officers for 1959-60 were elected at the May 18th meeting:

President—GLADYS ELLSWORTH, N. J. Department of Conservation and Economic Development
First Vice President—WILLIAM R. ALLEN, Statistical Consultant
Secretary-Treasurer — REUBEN COHEN, Opinion Research Corporation

Chicago

"Statistics and Judgment Day" was the title of the talk given at the March 12th luncheon meeting by Norman Prusinski, head of Market Research for the A. O. Smith Corporation of Milwaukee. Mr. Prusinski discussed the experiences of his firm in using statistics to aid in business decisions, emphasizing that collection and analysis of statistics is generally useless unless the entire program has been specifically designed to fit the decisions to which it relates.

The fifth dinner meeting of the 1958-59 season was held April 23rd. The dinner was preceded by a late afternoon session at which Adolph O. Berger, Regional Director of the Bureau of Labor Statistics, discussed "C.P.I.—What It Is and What It Is Not." The after-dinner speaker was Michael J. Conlon, Office of the Director, Bureau of the Census. Mr. Conlon spoke on "Seasonality, or Seasoning Seasonal Adjustments (of Time Series) Seasonally," discussing methods of seasonal adjustment with particular attention to the mathematical model based on the FRB method which was developed by Julius Shiskin.

Two luncheon meetings were held in April. At the first of these on April 9th, at which members were the guests of the Chicago Chapter of the American Marketing Association, Donald E. DeVoto, of DeVoto, Somes & Company (Executive Personnel Consultants), discussed executive placement. At the second, on April 30th, Robert W. Teach, Manager of the Quality Control Department of Sears, Roebuck & Company, spoke on "A Large Retailer's Experience with Statistical Quality Control."

At the luncheon meeting on May 13th Albert Rees, Department of Economics, University of Chicago, formerly on the staff of the Council of Economic Advisers, was the speaker. Professor Rees' subject was "Adequacy of Price and Employment Data as Guides for Economic Policy Makers."

The Sixth Mid-West Conference, co-sponsored by the Chicago Chapter and the Chicago Association of Commerce and Industry, was a great success, with a record attendance of more than 300 persons. The subject of this year's conference, which was held at the Pick-Congress Hotel on March 26th, was "Effective Business Forecasting Techniques."

Montreal

On February 18th the Chapter had the privilege of having as a speaker Dr. Nathan Keyfitz, Senior Research Statistician, Dominion Bureau of Statistics. Dr. Keyfitz discussed the progress made in the techniques of sampling since Bowley's article of 1926. The audience was so much interested that it kept Dr. Keyfitz answering questions much after the usual time of adjournment.

On March the 11th, Dr. Joseph Kates of KCS Ltd., entertained the membership with a very interesting talk on "Computers, Statistics and Industry." A demonstration of the solution of a statistical problem (a multiple regression problem involving weights, heights, waistlines . . . and so

forth, of the audience) was carried out using the scientific digital computer: Librascope LGP 30.

On April the 22nd the Chapter members were presented with a panel discussion on: "Statistics: What is Offered in Universities, What is Looked for in Industry." The panel members were:

Mr. C. S. Carter, Chief Statistician, Bell Telephone Company
Mr. J. A. McDonald, Assistant Vice-President, Research and Development, Canadian National Railways
Dr. G. I. Paul, Assistant Professor of Genetics, McGill University
Dr. Jacques St-Pierre, Director, Center of Statistics, University of Montreal

The Technical Group of the Chapter had another meeting on March 25th devoted to non-parametric methods. Dr. Jacques St-Pierre, Director, Center of Statistics, University of Montreal, presented a problem and a very interesting discussion followed.

Nebraska

The installation meeting of the Nebraska Chapter was held in Lincoln, Nebraska on April 9th. The Chapter was fortunate in having Dr. H. O. Hartley of Iowa State College, who is a Director of the A.S.A. to present the charter of the A.S.A. to the Nebraska Chapter. Dr. Hartley spoke on "Applications of Statistics." The principal speaker was Dr. Edwin L. Crow of the National Bureau of Standards, Boulder, Colorado, who addressed the Chapter on "Significance Testing in Time Series Analysis."

Thirty-five members of the Chapter and guests attended the meeting.

New York

A meeting was held February 17th on "Recent Productivity Trends and Their Implications" under the chairmanship of Herbert Bienstock, Acting Regional Director of the Bureau of Labor Statistics. Speakers were Leon Greenberg, Chief of the Division of Productivity and Technological Developments of the B.L.S.; George Hagedorn, Director of Research of the National Association of Manufacturers; and Lazare Teper, Research Director for the International Ladies Garment Workers Union.

At a meeting on April 9th sponsored by the Physical and Engineering Sciences Division of the Chapter, Dr. Ronald Pyke, Professor of Mathematical Statistics, Columbia University, spoke on "Applications of Stochastic Processes to Counter Models," and Dr. Alan Birnbaum, Professor of Mathematical Statistics, Columbia University, discussed "Some New Theory and Techniques of Estimation (Generalized Maximum Likelihood Methods)." Arthur H. Walner, Consultant Statistician, New York Naval Shipyard, was chairman.

The Helen Slade Memorial Conference, a full day conference on business, stock market and sales forecasting tools and procedures held April 23rd, was a complete success. The speakers were Solomon Fabricant, Gerhard Colm, Elmer C. Bratt, Burton Crane, Arnold Bernhard, Morris Goldstein, Martin R. Gainsbrugh, Woodlief Thomas, Ralph Burgess, Louis Paradiso, Arthur Okun, Benjamin Lipstein, Louis Bean, and Robert G. Brown.

The Chapter's annual business meeting was held on May 13th. Reports were made on the 1958-59 year, and the new officers were announced. Dr. Irwin Friend, Dr. Jean Crockett, and Dr. Irving Travis, all of the Wharton School, University of Pennsylvania, spoke on "Recent Studies in Savings, Consumption and Income."

The new officers are:

President—ROBERT E. LEWIS, First National City Bank
Member of Executive Council—HERBERT H. MARKS, Metropolitan Life Ins. Co.
Secretary—SIDNEY SAMETH, Union Health Center

Philadelphia

On Wednesday evening, February 25th the Chapter held its monthly meeting at the University of Pennsylvania. The speaker for the evening was Mr. Harry Nisselson, of the U. S. Bureau of the Census, whose topic was "The Enumeration Procedures of the 1960 Census."

The principal changes now planned for 1960 as highlighted by Mr. Nisselson are:

(1) Extension of sampling. A much wider use of sampling will be made. Only a few basic items will be handled by 100 percent enumeration. Information on other subjects will be collected from a 25 percent sample of households.

(2) New equipment. For the first time, full use of electronic computers will be used to process the census data. Also the costly and time consuming job of key punching will be eliminated by the utilization of another electronic device, FOSDIC (Film Optical Sensing Device for Imput to Computers). By microfilming the census data sheets and feeding the film through this device, the imput data will be recorded on magnetic tape. This can be done in approximately 3 months as compared to the 14 months it took for key punching in 1950.

(3) Enumeration methods. Although enumerators will visit every home, much of the information will be furnished by forms which the householders themselves have filled out. The 100 percent questions will be distributed in advance through the Post Office. This procedure provides an opportunity for participation in responses by all members of the household, and reduces the contribution of enumerators to response errors.

Through the adoption of these changes, the Bureau hopes to make substantial reductions in the time it takes to publish results; to improve the quality of the censuses; and finally, to achieve both of the preceding at less cost than the 1950 cost levels adjusted for the increase in population and salary and price changes.

Pittsburgh

The February meeting was addressed by Mr. Cuthbert Daniel, Industrial Engineering Consultant, who spoke on "Patterns of Discrepancies." In March, members of the Chapter served as hosts, ushers, etc., for the annual meeting of The Institute of Mathematical Statistics, Biometric Society (ENAR), and the Physical Science Section of the A.S.A. In April, Dr. Peter R. Winters, Carnegie Institute of Technology, discussed "A Linear Decision Rule for Production and Employment Scheduling." In May, Dr. Max Halperin, Knolls Atomic Power Laboratory, General Electric Company, spoke on "The Use of Some Statistical Methods for Finite Populations."

The following new officers were elected at the May meeting:

President—HERBERT GINSBURG, Westinghouse Electric Corporation
Vice-President—PHILIP HERMANN, Jones and Laughlin Steel Corporation
Treasurer—THOMAS A. ELKINS, Gulf Research and Development Company
Secretary—ISIDORE ALTMAN, Graduate School of Public Health, University of Pittsburgh

Puerto Rico

On February 28th the Puerto Rico Economics Association held its eighth annual assembly, which was well attended. At the annual luncheon and business meeting several amendments to the Association's rules and regulations were approved, the most important of which was an amendment changing the name of the Association to the "Puerto Rico Economics and Statistical Association." The Executive Committee, which had been elected to office in August 1958, was re-elected for another term, with Dr. Vernon Esteves replacing Dr. Nestor Marquez-Diaz, who is no longer on the island, as a member.

Rochester

A joint meeting with the Rochester, New York section of the American Society for Quality Control was held on April 7, 1959. Dr. J. Stuart Hunter of the Statistical Research Group, Princeton University, presented a very interesting and informative paper on "The Sequential Use of Factorial Designs." Dr. Hunter first described the basic theory of fractional factorials and then suggested ways of combining information obtained from two or many fractions, run sequentially.

San Francisco

The Chapter's third meeting of the year was held on March 18th at the Faculty Club of the University of California at Berkeley. The speaker, Dr. Charles Glock, Professor of Sociology and Director of the University's Survey Research Center, spoke on the subject, "Some Statistical Challenges of Survey Research." After setting forth the purposes and objectives of the recently established Center, Dr. Glock presented a stimulating discussion of the types of studies the Center is undertaking and the nature of the analytical problems encountered.

On April 16th, Professor Boris Swerling of Stanford University's Food Research In-

stitute addressed members of the Chapter on the subject, "The Professor and the Bureaucrat." Professor Swerling, until recently a senior staff member of the Council of Economic Advisers, analyzed the role of the Council as staff adviser to the President and discussed the contribution of the academic economist and statistician in analyzing the condition of the national economy and assisting in the formulation of policy for national growth and development.

Southern California

A dinner meeting was held on March 26th at which William Hensel, Western Field Manager of the Statistical and Research Division of the F. W. Dodge Company, and Robert Wettstein spoke on building statistics. Mr. Hensel's subject was "Methods Used in Gathering Building Statistics"; Mr. Wettstein's, "The Use of Statistics by Manufacturers in the Building Field."

At the April 30th dinner meeting, Max Dean, resident manager of the Statler Hilton Hotel of Los Angeles, discussed "The Intricate Statistics Used in The Hotel Business."

Virginia

The Virginia Chapter of the American Statistical Association held its annual joint meeting with the Statistics Section of the Virginia Academy of Science at the University of Virginia at Charlottesville, Virginia, on May 8 and 9, 1959. Eighteen papers were presented covering a wide range of topics including operations research, biological statistics, and statistical theory. The meetings were attended by about fifty persons from Virginia and surrounding states.

Plans were initiated for another joint meeting with the Richmond Section of the American Society for Quality Control to be held sometime in the fall. It was also suggested that a clinic in statistics for non-statisticians be held in conjunction with the next annual meeting to be held in Richmond in May, 1960.

The following new Chapter officers were elected at this meeting:

President—Ira A. DeArmon, Jr., Biological Warfare Laboratories, Fort Detrick, Maryland

Vice-President—James Armstrong, E. I. du Pont de Nemours & Co., Richmond, Virginia

Secretary—William A. Glenn, Dept. of Statistics, Virginia Polytechnic Institute, Blacksburg, Virginia

These officers will also serve as officers for the Statistics Section of the Virginia Academy of Science with Dr. C. Y. Kramer, Virginia Polytechnic Institute, who is the Statistics Section Editor.

Washington

The U. S. National Health Survey was the subject of the March 25th meeting. Forrest E. Linder, Director of the Survey, was chairman of the meeting, and six speakers, all staff members of the Survey or its cooperating agency, the Bureau of the Census, discussed different facets of the Survey program. The speakers and their topics were:

Theodore D. Woolsey, Assistant Director —"The Variety of Health-Data Needs"

Dr. O. K. Sagen, Chief, Special Studies—"What the Health-Examination Survey Can Do"

Dr. Alice M. Waterhouse, Medical Adviser—"Medical Measurement Problems"

Dr. Philip S. Lawrence, Chief, Household Survey Analysis—"What the Health-Interview Survey Can Do"

Katherine G. Capt, Bureau of the Census —"Interview Measurement Problems"

Walt R. Simmons, Statistical Adviser—"Beginnings Toward Evaluation"

The April 22nd meeting was devoted to a discussion of the indexes of prices received and paid by farmers. The chairman of the meeting was Conrad Taeuber, Bureau of the Census; and the speakers were Bruce M. Graham, Special Statistics Branch, Agricultural Marketing Service, whose topic was "Some Experimental Work on Sampling for Agricultural Price Data"; and B. Ralph Stauber, Agricultural Price Statistics Branch, Agricultural Marketing Service, whose subject was "1959 Revision of the Indexes of Prices Received and of Prices Paid by Farmers." H. E. Riley, Division of Prices and Cost of Living, Bureau of Labor Statistics, and Peyton Stapp, Office of Statistical Standards, Bureau of the Budget, were discussants.

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tion). The Directory tabulations include 5,600 returns out of 6,500 mailed. It is hoped that an article about the ASA membership, based upon the Directory tabulations, will be submitted for publication at a later date.

Returning to the findings from the questionnaire, my purpose at the moment is to touch upon some of the highlights and general flavor of the questionnaire study, with a detailed report and recommendations to come later from the Committee.

The first question asked length of membership: 23% have been members less than two years, 42% at least two years but less than ten, and 34% ten years or more. The distribution of respondents by source of employment were as follows:

Educator	23%
Government, other than educational	25%
Private research or consulting organization	9%
Business or industry	37%
Charitable institution	1%
Student	3%
Other	2%

Sectional interest listed by *first choice* showed the following ranking:

1. Business and Economic Statistics
2. Physical and Engineering Sciences
3. Social Statistics
4. Biometrics
5. Training of Statisticians

(Adding second choice ranking would reverse the positions of Physical and Engineering Sciences and Social Statistics, but would leave the others unchanged.)

With this information of sectional interest it is not surprising to learn which publications, aside from those of ASA, are most widely read by the members. By percent of all respondents the periodicals of greatest interest were as follows:

American Economic Review	13.0
Annals of Mathematical Statistics	8.0
Journal of Marketing	7.6
Other economics journals	4.9
Biometrics	4.4
Other business and commerce	4.3
Other statistical and mathematical	4.2

Publications in the fields of operations research, sociology, physical sciences and health sciences all showed between 3.0 and 3.5 percent.

This listing coupled with findings on the field of the most advanced college degree, shows most clearly the major factor within the American Statistical Association: the great spread of fields of interest and activity.

In the questionnaire, members were asked to indicate their general feelings as to how well the JOURNAL and THE AMERICAN STATISTICIAN served the needs of the Association. Four check boxes were headed "very well," "adequately," poorly" and "not at all."

Percentage responses for each publication showed the following:

	JOURNAL	THE AMERICAN STATISTICIAN
Very well	34%	28%
Adequately	52%	50%
Poorly	8%	11%
Not at all	[a]	2%
Non-response	6%	9%

[a] Less than 0.5%.

Further tabulations have been made showing the distribution of these evaluations of both periodicals by length of membership and by sectional interest. Space does not permit inclusion here. I should like to express the Association's appreciation to Earl Houseman for designing the sample and supervising the tabulations.

It is apparent that some of the criticism that has been leveled at the JOURNAL and THE AMERICAN STATISTICIAN might be called "surface discontent." That is, a disaffection with, let us say, the number of articles appearing in areas of interest other than one's own. However, when the member sat down to answer (and analyze) each question, the realization of the overall quality and value of the periodicals was evident in the responses. There is no attempt here to by-pass or treat lightly whatever genuine deep-seated discontent exists—that there is constantly a need for re-evaluation is obvious. Certainly, an association as broad as ASA must be, will never be able to cover all interests intensively in one journal. There will be continuing complaints and these will be vital to the successful evolution of our publications.

It should be noted that ample opportunity and space were provided to present at length whatever criticism (or praise) the respondent cared to note down. These "essay-type" replies were also evaluated. By and large the impressive thing about the results is the infrequency with which extremely critical replies were received. There always remains, of course, the problem of better fulfilling the *individual* needs of the members. The present publications may serve the Association well, yet leave groups of individuals without recourse to the types of statistical materials that they feel are necessary to their work or that will satisfy their intellectual curiosity. Part of this problem is the varying levels of technical education and competence. Even so, it would seem to be largely the familiar problem of different fields of interest.

Other publications, e.g., TECHNOMETRICS, the Proceedings of the Business and Economic Statistics Section and the Social Statistics Section, all are intended to meet various needs of separate groups, and they supplement those articles appearing in the JOURNAL and THE AMERICAN STATISTICIAN. The Committee on Publications Policy will appreciate your continued interest and further reactions.